

SEQUENCE LISTING

<110> ANDERSEN, Peter  
SKJOT, Rikke

<120> ~~NUCLEIC ACID FRAGMENTS AND POLYPEPTIDE FRAGMENTS  
DERIVED FROM M. TUBERCULOSIS Antigens~~

<130> 670001-2002.4

<140> 09/246,191 *Hewitt*  
<141> 1998-12-30

<150> 1997 01277

<151> 1997-10-11

<150> PCT/DK98/00438

<151> 1998-08-10

<150> PCT/DK98/00132

<151> 1998-01-04

<150> 60/070,488

<151> 1998-01-05

<160> 1993 257

<170> PatentIn Ver. 2.0

<210> 1

<211> 381

<212> DNA

<213> Mycobacterium tuberculosis

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<210> 2

<211> 96

<212> PRT

<213> Mycobacterium tuberculosis

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25

30

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Gly Leu Asp Val Ser Asp Arg Ile Arg Val Val Met Ser Val Pro Ala  
50 55 60

Glu Arg Glu Asp Trp Ala Arg Thr His Arg Asp Leu Ile Ala Gly Glu  
65 70 75 80

Ile Leu Ala Thr Asp Phe Glu Phe Ala Asp Leu Ala Asp Gly Val Ala  
85 90 95

Ile Gly Asp Gly Val Arg Val Ser Ile Glu Lys Thr  
100 105

<210> 5

<211> 889

<212> DNA

<213> Mycobacterium tuberculosis

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<211> 162

<212> PRT

<213> Mycobacterium tuberculosis

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ggcgtaata caggtgcagg tcgtgcgtcc acgtgaaggc gatggcaccg tggatctgaa 840  
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<211> 165

<212> PRT

<213> Mycobacterium tuberculosis

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20 25 30

Asp Leu Gly Val Ile Ser Ser Asp Gln Phe Arg Gly Lys Ser Val Leu  
35 40 45

Leu Asn Ile Phe Pro Ser Val Asp Thr Pro Val Cys Ala Thr Ser Val  
50 55 60

Arg Thr Phe Asp Glu Arg Ala Ala Ala Ser Gly Ala Thr Val Leu Cys  
65 70 75 80

Val Ser Lys Asp Leu Pro Phe Ala Gln Lys Arg Phe Cys Gly Ala Glu  
85 90 95

Gly Thr Glu Asn Val Met Pro Ala Ser Ala Phe Arg Asp Ser Phe Gly  
100 105 110

Glu Asp Tyr Gly Val Thr Ile Ala Asp Gly Pro Met Ala Gly Leu Leu  
115 120 125

Ala Arg Ala Ile Val Val Ile Gly Ala Asp Gly Asn Val Ala Tyr Thr  
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Ala Ala Leu Gly Ala  
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<210> 9

<211> 1054

<212> DNA

<213> Mycobacterium tuberculosis

<400> 9

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<210> 10

<211> 217

<212> PRT

<213> Mycobacterium tuberculosis

<400> 10

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Asp Pro Cys Ser Asp Ile Ala Val Val Phe Ala Arg Gly Thr His Gln  
35 40 45

Ala Ser Gly Leu Gly Asp Val Gly Glu Ala Phe Val Asp Ser Leu Thr  
50 55 60

Ser Gln Val Gly Gly Arg Ser Ile Gly Val Tyr Ala Val Asn Tyr Pro  
65 70 75 80

Ala Ser Asp Asp Tyr Arg Ala Ser Ala Ser Asn Gly Ser Asp Asp Ala  
85 90 95

Ser Ala His Ile Gln Arg Thr Val Ala Ser Cys Pro Asn Thr Arg Ile

100 105 110  
Val Leu Gly Gly Tyr Ser Gln Gly Ala Thr Val Ile Asp Leu Ser Thr  
115 120 125

Ser Ala Met Pro Pro Ala Val Ala Asp His Val Ala Ala Val Ala Leu  
130 135 140

Phe Gly Glu Pro Ser Ser Gly Phe Ser Ser Met Leu Trp Gly Gly Gly  
145 150 155 160

Ser Leu Pro Thr Ile Gly Pro Leu Tyr Ser Ser Lys Thr Ile Asn Leu  
165 170 175

Cys Ala Pro Asp Asp Pro Ile Cys Thr Gly Gly Gly Asn Ile Met Ala  
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195 200 205

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<211> 182

<212> PRT

<213> Mycobacterium tuberculosis

<400> 12

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Ala Thr Leu His Thr Asn Arg Gly Asp Ile Lys Ile Ala Leu Phe Gly

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25

30

Asn His Ala Pro Lys Thr Val Ala Asn Phe Val Gly Leu Ala Gln Gly

35

40

45

Thr Lys Asp Tyr Ser Thr Gln Asn Ala Ser Gly Gly Pro Ser Gly Pro

50

55

60

Phe Tyr Asp Gly Ala Val Phe His Arg Val Ile Gln Gly Phe Met Ile

65

70

75

80

Gln Gly Gly Asp Pro Thr Gly Thr Gly Arg Gly Gly Pro Gly Tyr Lys

85

90

95

Phe Ala Asp Glu Phe His Pro Glu Leu Gln Phe Asp Lys Pro Tyr Leu

100

105

110

Leu Ala Met Ala Asn Ala Gly Pro Gly Thr Asn Gly Ser Gln Phe Phe

115

120

125

Ile Thr Val Gly Lys Thr Pro His Leu Asn Arg Arg His Thr Ile Phe

130

135

140

Gly Glu Val Ile Asp Ala Glu Ser Gln Arg Val Val Glu Ala Ile Ser

145

150

155

160

Lys Thr Ala Thr Asp Gly Asn Asp Arg Pro Thr Asp Pro Val Val Ile

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170

175

Glu Ser Ile Thr Ile Ser

180

<210> 13

<211> 1060

<212> DNA

<213> Mycobacterium tuberculosis

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<211> 219

<212> PRT

<213> Mycobacterium tuberculosis

<400> 14

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Ile Thr Val Pro Ala Gly Tyr Pro Gly Ala Val Ala Pro Ala Thr Ala  
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Ala Cys Pro Asp Ala Glu Val Val Phe Ala Arg Gly Arg Phe Glu Pro  
35 40 45

Pro Gly Ile Gly Thr Val Gly Asn Ala Phe Val Ser Ala Leu Arg Ser  
50 55 60

Lys Val Asn Lys Asn Val Gly Val Tyr Ala Val Lys Tyr Pro Ala Asp  
65 70 75 80

Asn Gln Ile Asp Val Gly Ala Asn Asp Met Ser Ala His Ile Gln Ser  
85 90 95

Met Ala Asn Ser Cys Pro Asn Thr Arg Leu Val Pro Gly Gly Tyr Ser  
100 105 110

Leu Gly Ala Ala Val Thr Asp Val Val Leu Ala Val Pro Thr Gln Met  
115 120 125

Trp Gly Phe Thr Asn Pro Leu Pro Pro Gly Ser Asp Glu His Ile Ala  
130 135 140

Ala Val Ala Leu Phe Gly Asn Gly Ser Gln Trp Val Gly Pro Ile Thr  
145 150 155 160

Asn Phe Ser Pro Ala Tyr Asn Asp Arg Thr Ile Glu Leu Cys His Gly  
165 170 175

Asp Asp Pro Val Cys His Pro Ala Asp Pro Asn Thr Trp Glu Ala Asn  
180 185 190

Trp Pro Gln His Leu Ala Gly Ala Tyr Val Ser Ser Gly Met Val Asn  
195 200 205

Gln Ala Ala Asp Phe Val Ala Gly Lys Leu Gln  
210 215

<210> 15

<211> 1198

<212> DNA

<213> Mycobacterium tuberculosis

<400> 15

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<211> 265

<212> PRT

<213> Mycobacterium tuberculosis

<400> 16

Met Asn Asn Leu Tyr Arg Asp Leu Ala Pro Val Thr Glu Ala Ala Trp

1

5

10

15

Ala Glu Ile Glu Leu Glu Ala Ala Arg Thr Phe Lys Arg His Ile Ala

20

25

30

Gly Arg Arg Val Val Asp Val Ser Asp Pro Gly Gly Pro Val Thr Ala

35

40

45

Ala Val Ser Thr Gly Arg Leu Ile Asp Val Lys Ala Pro Thr Asn Gly

50

55

60

Val Ile Ala His Leu Arg Ala Ser Lys Pro Leu Val Arg Leu Arg Val

65

70

75

80

Pro Phe Thr Leu Ser Arg Asn Glu Ile Asp Asp Val Glu Arg Gly Ser

85

90

95

Lys Asp Ser Asp Trp Glu Pro Val Lys Glu Ala Ala Lys Lys Leu Ala

100

105

110

Phe Val Glu Asp Arg Thr Ile Phe Glu Gly Tyr Ser Ala Ala Ser Ile

115

120

125

Glu Gly Ile Arg Ser Ala Ser Ser Asn Pro Ala Leu Thr Leu Pro Glu

130

135

140

Asp Pro Arg Glu Ile Pro Asp Val Ile Ser Gln Ala Leu Ser Glu Leu

145

150

155

160

Arg Leu Ala Gly Val Asp Gly Pro Tyr Ser Val Leu Leu Ser Ala Asp

165

170

175

Val Tyr Thr Lys Val Ser Glu Thr Ser Asp His Gly Tyr Pro Ile Arg

180

185

190

Glu His Leu Asn Arg Leu Val Asp Gly Asp Ile Ile Trp Ala Pro Ala

195

200

205

Ile Asp Gly Ala Phe Val Leu Thr Thr Arg Gly Gly Asp Phe Asp Leu

210

215

220

Gln Leu Gly Thr Asp Val Ala Ile Gly Tyr Ala Ser His Asp Thr Asp

225                    230                    235                    240

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<210> 17

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<212> PRT

<213> Mycobacterium tuberculosis

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<221> UNSURE

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<223> Xaa is unknown

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<210> 18

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 18

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1                    5                    10                    15

<210> 19

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

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<210> 20

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 20

Thr Asn Ser Pro Leu Ala Thr Ala Thr Ala Thr Leu His Thr Asn  
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<210> 21

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

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<222> (2)

<223> Xaa is unknown

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<210> 22

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

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<223> Xaa is unknown

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<223> Ile is Ile or Val

<220>

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<220>  
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<223> Val is Val or Phe

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<210> 23  
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<213> Mycobacterium tuberculosis

<400> 23  
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Ala Glu Ile

<210> 24  
<211> 34  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 24  
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34

<210> 25  
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37

<210> 26

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the Ward Spouse Mr. John Hall

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<211> 952		
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tggccggga catcccggtg gccttcttag ccggtgggcc gcacgcggtg tatctgtgg 240		
acgccttcaa cgccggccccg gatgtcagta actgggtcac cgccggtaac gcgtgaaca 300		
cgttggcggtt caaggggatt tcggtggtgg caccggccgg tggtgctac agcatgtaca 360		
ccaaactggga gcaggatggc agcaagcagt gggacacctt ctgtccgct gagctgccc 420		
actggctggc cgctaaccgg ggcttggccc ccggtgccca tgccggcggtt ggccggctc 480		
aggggcggtta cggggcgatg ggcgtggcggt cttccaccc cgaccgcgtt ggcttgcgtg 540		
gtctcgatgtc gggctttttt taccctgtca acaccaccac caacggtgcg atcgccggcgg 600		
gcatgcagca attcgccgt gtggacacca acggaatgtg gggagcacca cagctgggtc 660		
ggtggaaatgt gcacgacccg tgggtgcgtt ccagcctgt ggcgcaaaac aacacccggg 720		
tgtgggtgtg gagcccgacc aacccggag ccagcgatcc cgccgcctatg atcgccaaa 780		
ccggccgaggc gatgggtaac agccgcgtt tctacaacca gtatcgacg gtccggcggtc 840		
acaacggaca cttcgacttc ccagccagcg gtgacaacgg ctggggctcg tggcgcccc 900		
agctggcgatc tatgtcggtt gatatcgatcg gtgcgtatcc ctaagcgaaat tc 952		
<210> 42		
<211> 299		

<212> PRT

<213> Mycobacterium tuberculosis

<400> 42

Met Lys Gly Arg Ser Ala Leu Leu Arg Ala Leu Trp Ile Ala Ala Leu  
1 5 10 15

Ser Phe Gly Leu Gly Gly Val Ala Val Ala Ala Glu Pro Thr Ala Lys  
20 25 30

Ala Ala Pro Tyr Glu Asn Leu Met Val Pro Ser Pro Ser Met Gly Arg  
35 40 45

Asp Ile Pro Val Ala Phe Leu Ala Gly Gly Pro His Ala Val Tyr Leu  
50 55 60

Leu Asp Ala Phe Asn Ala Gly Pro Asp Val Ser Asn Trp Val Thr Ala  
65 70 75 80

Gly Asn Ala Met Asn Thr Leu Ala Gly Lys Gly Ile Ser Val Val Ala  
85 90 95

Pro Ala Gly Gly Ala Tyr Ser Met Tyr Thr Asn Trp Glu Gln Asp Gly  
100 105 110

Ser Lys Gln Trp Asp Thr Phe Leu Ser Ala Glu Leu Pro Asp Trp Leu  
115 120 125

Ala Ala Asn Arg Gly Leu Ala Pro Gly Gly His Ala Ala Val Gly Ala  
130 135 140

Ala Gln Gly Gly Tyr Gly Ala Met Ala Leu Ala Ala Phe His Pro Asp  
145 150 155 160

Arg Phe Gly Phe Ala Gly Ser Met Ser Gly Phe Leu Tyr Pro Ser Asn  
165 170 175

Thr Thr Thr Asn Gly Ala Ile Ala Ala Gly Met Gln Gln Phe Gly Gly  
180 185 190

Val Asp Thr Asn Gly Met Trp Gly Ala Pro Gln Leu Gly Arg Trp Lys  
195 200 205

Trp His Asp Pro Trp Val His Ala Ser Leu Leu Ala Gln Asn Asn Thr  
210 215 220

Arg Val Trp Val Trp Ser Pro Thr Asn Pro Gly Ala Ser Asp Pro Ala  
225 230 235 240

Ala Met Ile Gly Gln Thr Ala Glu Ala Met Gly Asn Ser Arg Met Phe  
245 250 255

Tyr Asn Gln Tyr Arg Ser Val Gly Gly His Asn Gly His Phe Asp Phe  
260 265 270

Pro Ala Ser Gly Asp Asn Gly Trp Gly Ser Trp Ala Pro Gln Leu Gly  
275 280 285

Ala Met Ser Gly Asp Ile Val Gly Ala Ile Arg  
290 295

<210> 43

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 43

gcaaacacccg ggatgtcgca aatcatg

27

<210> 44

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 44

gtaaacacccg gggtgccgc cgacccg

27

<210> 45

<211> 37

<212> DNA

<213> Mycobacterium tuberculosis

<400> 45

ctactaagct tggatcccta gccccccat ttggcgg

37

<210> 46

<211> 38

<212> DNA

<213> Mycobacterium tuberculosis

<400> 46

ctactaagct tccatggtca ggttttcg atgcttac

38

<210> 47

<211> 450

<212> DNA

<213> Mycobacterium tuberculosis

<400> 47

gtgccgcgct ccccagggtt cttatggttc gatatacctg agtttgatgg aagtccgatg 60  
accagcagtc agcatacggc atggccgaaa agagtgggt gatgatggcc gaggatgttc 120  
gcccgcagat cgtggccagc gttctcgaa tcgttgtcaa cgaaggcgat cagatcgaca 180  
agggcgcacgt cgtgggtctg ctggagtcga tgaagatgga gatccccgtc ctggccgaaag 240  
ctgcccgaac ggtcagcaag gtggcggtat cggtgggcga tgcattcag gccggcgacc 300  
ttatcgccgt gatcagctag tcgttgatag tcactcatgt ccacactcg tgatctgctc 360  
gccgaacaca cggtgctgcc gggcagcgcg gtggaccacc tgcatgcgtt ggtcggggag 420  
tggcagctcc ttgccgactt gtcgtttgcc 450

<210> 48

<211> 71

<212> PRT

<213> Mycobacterium tuberculosis

<400> 48

Met Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val  
1 5 10 15

Val Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu  
20 25 30

Leu Glu Ser Met Lys Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly  
35 40 45

Thr Val Ser Lys Val Ala Val Ser Val Gly Asp Val Ile Gln Ala Gly  
50 55 60

Asp Leu Ile Ala Val Ile Ser  
65 70

<210> 49

<211> 750

<212> DNA

<213> Mycobacterium tuberculosis

<400> 49

gggtacccat cgatgggttg cggttcggca ccgagggtct aacgcacttg ctgacacact 60  
gctagtcgaa aacgaggcta gtcgcaacgt cgatcacacg agaggactga ccatgacaac 120  
ttcacccgac ccgtatgccc gctgccccaa gctgccgtcc ttcagcctga cgtcaacctc 180  
gatcaccgat gggcagccgc tggctacacc ccaggctcagc gggatcatgg gtgcggggcg 240  
ggcggatgcc agtccgcagc tgaggtggtc gggatttccc agcgagaccc gcagcttcgc 300  
ggtaaccgtc tacgaccctg atgccccac cctgtccggg ttctggcaact gggcggtggc 360  
caacctgcct gccaacgtca ccgagttgcc cgagggtgtc ggcatggcc gcgaactgccc 420

ggcgccccca ctgacattgg tcaacgacgc cggtatgcgc cggtatgtgg gtgcggcgcc 480  
gcctcccggt catggggtgc atcgctacta cgtcgccgta cacgcggta aggtcgaaaa 540  
gctcgacctc cccgaggacg cgagtcctgc atatctggga ttcaaccctgt tccagcacgc 600  
gattgcacga gcggtcatct tcggcaccta cgagcagcgt tagcgctta gctgggttgc 660  
cgacgtcttg ccgagccgac cgcttcgtgc agcgagccga acccgccgtc atgcagcctg 720  
cgggcaatgc cttcatggat gtccttggcc 750

<210> 50

<211> 176

<212> PRT

<213> Mycobacterium tuberculosis

<400> 50

Met Thr Thr Ser Pro Asp Pro Tyr Ala Ala Leu Pro Lys Leu Pro Ser  
1 5 10 15

Phe Ser Leu Thr Ser Thr Ser Ile Thr Asp Gly Gln Pro Leu Ala Thr  
20 25 30

Pro Gln Val Ser Gly Ile Met Gly Ala Gly Gly Ala Asp Ala Ser Pro  
35 40 45

Gln Leu Arg Trp Ser Gly Phe Pro Ser Glu Thr Arg Ser Phe Ala Val  
50 55 60

Thr Val Tyr Asp Pro Asp Ala Pro Thr Leu Ser Gly Phe Trp His Trp  
65 70 75 80

Ala Val Ala Asn Leu Pro Ala Asn Val Thr Glu Leu Pro Glu Gly Val  
85 90 95

Gly Asp Gly Arg Glu Leu Pro Gly Gly Ala Leu Thr Leu Val Asn Asp  
100 105 110

Ala Gly Met Arg Arg Tyr Val Gly Ala Ala Pro Pro Pro Gly His Gly  
115 120 125

Val His Arg Tyr Tyr Val Ala Val His Ala Val Lys Val Glu Lys Leu  
130 135 140

Asp Leu Pro Glu Asp Ala Ser Pro Ala Tyr Leu Gly Phe Asn Leu Phe  
145 150 155 160

Gln His Ala Ile Ala Arg Ala Val Ile Phe Gly Thr Tyr Glu Gln Arg  
165 170 175

<210> 51  
<211> 800  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 51  
tcatgagggtt catcggggtg atcccacgcc cgccagccgc ttcggggccgc tggcgagccg 60  
gtgccgcacg ccgcctcacc agcctgggtgg ccggccgcctt tgccggccgc acactgttgc 120  
ttaccccccgc gctggcacca cccggatcgg cgggctgcgg ggatgcccggag gtgggtttcg 180  
cccgccggaaac cggcgaacca cctggcctcg gtcgggttagg ccaagcttc gtcagttcat 240  
tgcgccagca gaccaacaag agcatcggga catacggagt caactacccg gccaacgggtg 300  
atttcttggc cgccgctgac ggcgcgaacg acgccagcga ccacattcag cagatggcca 360  
gcccgtggcg ggccacgagg ttgggtctcg gcgcgtactc ccagggtgcg gccgtgatcg 420  
acatgtcacc cgcgcacca ctgccccggcc tcgggttcac gcagccgttg ccgcccccgag 480  
cggacgatca catcgcgcgc atgcacctgt tcggaaatcc ctgcggccgc gctggcgggc 540  
tgatgagcgc cctgaccctt caattcggtt ccaagaccat caacctctgc aacaacggcg 600  
acccgatttgc ttccggacggc aaccgggtggc gagcgcacccctt aggctacgtg cccggatga 660  
ccaaaccaggc ggcgcgttgc gtcgcgagca ggatctaaccg cgagccgcgc catagattcc 720  
ggctaaagcaa cggctgcgcgc gccgccccggc cacgagtgac cgccgcgcac tggcacaccg 780  
cttaccacgg ccttatgtcg 800

<210> 52  
<211> 226  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 52  
Met Ile Pro Arg Pro Gln Pro His Ser Gly Arg Trp Arg Ala Gly Ala  
1 5 10 15  
Ala Arg Arg Leu Thr Ser Leu Val Ala Ala Ala Phe Ala Ala Ala Thr  
20 25 30  
Leu Leu Leu Thr Pro Ala Leu Ala Pro Pro Ala Ser Ala Gly Cys Pro  
35 40 45  
Asp Ala Glu Val Val Phe Ala Arg Gly Thr Gly Glu Pro Pro Gly Leu  
50 55 60  
Gly Arg Val Gly Gln Ala Phe Val Ser Ser Leu Arg Gln Gln Thr Asn  
65 70 75 80  
Lys Ser Ile Gly Thr Tyr Gly Val Asn Tyr Pro Ala Asn Gly Asp Phe  
85 90 95  
Leu Ala Ala Ala Asp Gly Ala Asn Asp Ala Ser Asp His Ile Gln Gln

100	105	110
Met Ala Ser Ala Cys Arg Ala Thr Arg Leu Val Leu Gly Gly Tyr Ser		
115	120	125
Gln Gly Ala Ala Val Ile Asp Ile Val Thr Ala Ala Pro Leu Pro Gly		
130	135	140
Leu Gly Phe Thr Gln Pro Leu Pro Pro Ala Ala Asp Asp His Ile Ala		
145	150	155
Ala Ile Ala Leu Phe Gly Asn Pro Ser Gly Arg Ala Gly Gly Leu Met		
165	170	175
Ser Ala Leu Thr Pro Gln Phe Gly Ser Lys Thr Ile Asn Leu Cys Asn		
180	185	190
Asn Gly Asp Pro Ile Cys Ser Asp Gly Asn Arg Trp Arg Ala His Leu		
195	200	205
Gly Tyr Val Pro Gly Met Thr Asn Gln Ala Ala Arg Phe Val Ala Ser		
210	215	220
Arg Ile		
225		

<210> 53  
<211> 700  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 53  
cttagaaagc ctttcctgag taagtattgc ctgcgttgca taccgcctt tacctgcgtt 60  
aatctgcatt ttatgacaga atacgaaggg cctaagacaa aattccacgc gttaatgcag 120  
gaacagattc ataacgaatt cacagcggca caacaatatg tcgcgatcgc ggtttatttc 180  
gacagcgaag acctgccgca gttggcgaag cattttaca gccaagcggt cgaggaacga 240  
aaccatgcaa tgatgctcgt gcaacacctg ctcgaccgcg accttcgtgt cgaaaattccc 300  
ggcgtagaca cggcgcgaaa ccagttcgac agaccccgcg aggcaactggc gctggcgctc 360  
gatcaggaac gcacagtcac cgaccaggc ggtcggtcga cagcggcggc ccgcgacgag 420  
ggcgatttcc tcggcgagca gttcatgcag tggttcttgc aggaacagat cgaagaggtg 480  
gccttgcgtt caaccctggc gctgggttgc gatcggggcg gggccaacct gttcgagcta 540  
gagaacttcg tcgcacgtga agtggatgtg gcccggccg catcaggcgc cccgcacgct 600  
gccggggcc gcctcttagat ccctggcggg gatcaggcag tggtcccgtt cgcccgcccc 660  
tcttccagcc aggccttggc gctggccgggg tggtgagtac 700

<210> 54  
<211> 181

<212> PRT

<213> Mycobacterium tuberculosis

<400> 54

Met Thr Glu Tyr Glu Gly Pro Lys Thr Lys Phe His Ala Leu Met Gln  
1 5 10 15

Glu Gln Ile His Asn Glu Phe Thr Ala Ala Gln Gln Tyr Val Ala Ile  
20 25 30

Ala Val Tyr Phe Asp Ser Glu Asp Leu Pro Gln Leu Ala Lys His Phe  
35 40 45

Tyr Ser Gln Ala Val Glu Glu Arg Asn His Ala Met Met Leu Val Gln  
50 55 60

His Leu Leu Asp Arg Asp Leu Arg Val Glu Ile Pro Gly Val Asp Thr  
65 70 75 80

Val Arg Asn Gln Phe Asp Arg Pro Arg Glu Ala Leu Ala Leu Ala Leu  
85 90 95

Asp Gln Glu Arg Thr Val Thr Asp Gln Val Gly Arg Leu Thr Ala Val  
100 105 110

Ala Arg Asp Glu Gly Asp Phe Leu Gly Glu Gln Phe Met Gln Trp Phe  
115 120 125

Leu Gln Glu Gln Ile Glu Glu Val Ala Leu Met Ala Thr Leu Val Arg  
130 135 140

Val Ala Asp Arg Ala Gly Ala Asn Leu Phe Glu Leu Glu Asn Phe Val  
145 150 155 160

Ala Arg Glu Val Asp Val Ala Pro Ala Ala Ser Gly Ala Pro His Ala  
165 170 175

Ala Gly Gly Arg Leu  
180

<210> 55

<211> 950

<212> DNA

<213> Mycobacterium tuberculosis

<400> 55

tgggctcggc actggctctc ccacggtggc gcgtgttgc tccccacgg taggcgttgc 60

gacgcatgtt cttcaccgtc tatccacagc taccgacatt tgctccggct ghatcgccgg 120  
taaaattccg tcgtgaacaa tcgaccatc cgccctgctga catccggcag ggctggttt 180  
ggtcggggcg cattgatcac cgccgtcgctc ctgctcatcg ctttggcgc tggttgacc 240  
ccgggtgcct tcgcccgtgg atgcccggac gccgaagtca cggtcgccccg cgccaccggc 300  
gagccgccccg gaatcgcccg cggtggccag gcgttcgtcg actcgctgctc ccagcagact 360  
ggcatggaga tcggagtata cccggtaat tacgcccaca gccgcctaca gctgcacggg 420  
ggagacggcg ccaacgacgc catatcgac attaagtcca tggcctcgctc atgcccgaac 480  
accaagctgg tcttggccgg ctattcgacag ggccgaaccg tgatcgatcatcg 540  
gttccgttgg gcagcatcag ctttggcagt ccgctacctg cgccatacgc agacaacgctc 600  
gcagcggctcg cggcttcgg caatccgtcc aaccgcgcggc gcggatcgct gtcgagcctg 660  
agcccgctat tcggttccaa ggccattgtac ctgtgcaatcc acccgatcc gatctgcat 720  
gtggggccccg gcaacgaatt cagccggacac atcgacggct acataaccac ctacaccacc 780  
caggccggcta gttcgtcggt gcagaggctc cgcgcggggt cgggccaca tctgcctgga 840  
tccgtccccg agctgccccg gtctgtccctt cagatgccccg gcactgcccgc accggctccc 900  
aatcgctgc acggctcgctg acgctttgtc agtaagccca taaaatcgcg 950

<210> 56

<211> 262

<212> PRT

<213> Mycobacterium tuberculosis

<400> 56

Met Asn Asn Arg Pro Ile Arg Leu Leu Thr Ser Gly Arg Ala Gly Leu

1

5

10

15

Gly Ala Gly Ala Leu Ile Thr Ala Val Val Leu Leu Ile Ala Leu Gly

20

25

30

Ala Val Trp Thr Pro Val Ala Phe Ala Asp Gly Cys Pro Asp Ala Glu

35

40

45

Val Thr Phe Ala Arg Gly Thr Gly Glu Pro Pro Gly Ile Gly Arg Val

50

55

60

Gly Gln Ala Phe Val Asp Ser Leu Arg Gln Gln Thr Gly Met Glu Ile

65

70

75

80

Gly Val Tyr Pro Val Asn Tyr Ala Ala Ser Arg Leu Gln Leu His Gly

85

90

95

Gly Asp Gly Ala Asn Asp Ala Ile Ser His Ile Lys Ser Met Ala Ser

100

105

110

Ser Cys Pro Asn Thr Lys Leu Val Leu Gly Gly Tyr Ser Gln Gly Ala

115

120

125

Thr Val Ile Asp Ile Val Ala Gly Val Pro Leu Gly Ser Ile Ser Phe

130

135

140

Gly Ser Pro Leu Pro Ala Ala Tyr Ala Asp Asn Val Ala Ala Val Ala  
145 150 155 160

Val Phe Gly Asn Pro Ser Asn Arg Ala Gly Gly Ser Leu Ser Ser Leu  
165 170 175

Ser Pro Leu Phe Gly Ser Lys Ala Ile Asp Leu Cys Asn Pro Thr Asp  
180 185 190

Pro Ile Cys His Val Gly Pro Gly Asn Glu Phe Ser Gly His Ile Asp  
195 200 205

Gly Tyr Ile Pro Thr Tyr Thr Thr Gln Ala Ala Ser Phe Val Val Gln  
210 215 220

Arg Leu Arg Ala Gly Ser Val Pro His Leu Pro Gly Ser Val Pro Gln  
225 230 235 240

Leu Pro Gly Ser Val Leu Gln Met Pro Gly Thr Ala Ala Pro Ala Pro  
245 250 255

Glu Ser Leu His Gly Arg

260

<210> 57

<211> 1000

<212> DNA

<213> *Mycobacterium tuberculosis*

<400> 57

cgaggagacc gacgatctgc tcgacgaaat cgacgacgtc ctcgaggaga acgccgagga 60  
cttcgtccgc gcatacgtcc aaaagggcgg acagtgcacct ggccgttgcc cgatcgccctg 120  
tccattaatt cactctctgg aacacccgct gtagacacctat cttctttcac tgacttcctg 180  
cgccgcccagg cgccggagtt gctgcccga agcatcagcg gcgggtgcgc actcgcaggc 240  
ggcgtgcgc aactgcccga cggcaccacc attgtcgccg taaaaataccc cggcggtgtt 300  
gtcatggcgg gtgaccggcg ttcgacgcag ggcaacatga tttctggcg ttagtgtgcgc 360  
aagggtata tcaccgatga ctacacccgt accggcatcg ctggcacggc tgccgtcg 420  
gtttagtttgc cccggctgtta tgccgtggaa ctttagact acgagaagct cgagggtgtg 480  
ccgctgacgt ttggccggcaa aatcaacccgg ctggcgattta tgggtcggtgg caatctggcg 540  
gccgcgatgc agggtctgtt ggcgttgcgg ttgtctggcg gctacgacat tcatgcgtct 600  
gaccgcgaca ggcgggtcg tatcggttcg ttcgacgcgc ccggcggttg gaacatcgag 660  
gaagagggct atcaggcggt gggctcggtt tcgctgttcg cgaagtcgtc gatgaagaag 720  
ttgttattcgc aggttaccga cggtgattcg gggctcggtt tggcggtcg aacgcgtctac 780  
gacgcgcgcg acgacgactc cgccacccgc ggtccggacc tgggtcggtgg catctttccg 840  
acggcggtga tcatcgacgc cgacggggcg gttgacgtgc cggagagccg gattgccaa 900  
ttggcccccgcg cgatcatcgaa aagccgttcg ggtcggttgcgata ctttcggttcg cgatggcggt 960

gagaagtgag tttccgtat ttcatctcgc ctgaggcaggc 1000  
 <210> 58  
 <211> 291  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 58  
 Met Thr Trp Pro Leu Pro Asp Arg Leu Ser Ile Asn Ser Leu Ser Gly  
 1 5 10 15

Thr Pro Ala Val Asp Leu Ser Ser Phe Thr Asp Phe Leu Arg Arg Gln  
 20 25 30

Ala Pro Glu Leu Leu Pro Ala Ser Ile Ser Gly Gly Ala Pro Leu Ala  
 35 40 45

Gly Gly Asp Ala Gln Leu Pro His Gly Thr Thr Ile Val Ala Leu Lys  
 50 55 60

Tyr Pro Gly Gly Val Val Met Ala Gly Asp Arg Arg Ser Thr Gln Gly  
 65 70 75 80

Asn Met Ile Ser Gly Arg Asp Val Arg Lys Val Tyr Ile Thr Asp Asp  
 85 90 95

Tyr Thr Ala Thr Gly Ile Ala Gly Thr Ala Ala Val Ala Val Glu Phe  
 100 105 110

Ala Arg Leu Tyr Ala Val Glu Leu Glu His Tyr Glu Lys Leu Glu Gly  
 115 120 125

Val Pro Leu Thr Phe Ala Gly Lys Ile Asn Arg Leu Ala Ile Met Val  
 130 135 140

Arg Gly Asn Leu Ala Ala Ala Met Gln Gly Leu Leu Ala Leu Pro Leu  
 145 150 155 160

Leu Ala Gly Tyr Asp Ile His Ala Ser Asp Pro Gln Ser Ala Gly Arg  
 165 170 175

Ile Val Ser Phe Asp Ala Ala Gly Gly Trp Asn Ile Glu Glu Glu Gly  
 180 185 190

Tyr Gln Ala Val Gly Ser Gly Ser Leu Phe Ala Lys Ser Ser Met Lys  
 195 200 205

Lys Leu Tyr Ser Gln Val Thr Asp Gly Asp Ser Gly Leu Arg Val Ala

210

215

220

Val Glu Ala Leu Tyr Asp Ala Ala Asp Asp Asp Ser Ala Thr Gly Gly  
225 230 235 240

Pro Asp Leu Val Arg Gly Ile Phe Pro Thr Ala Val Ile Ile Asp Ala  
245 250 255

Asp Gly Ala Val Asp Val Pro Glu Ser Arg Ile Ala Glu Leu Ala Arg  
260 265 270

Ala Ile Ile Glu Ser Arg Ser Gly Ala Asp Thr Phe Gly Ser Asp Gly  
275 280 285

Gly Glu Lys  
290

<210> 59

<211> 900

<212> DNA

<213> Mycobacterium tuberculosis

<400> 59

ttggcccgcg cgatcatcga aagccgttcg ggtgcggata ctttcggctc cgatggcggt 60  
gagaagttag tttccgtat ttcatctcgc ctgagcaggc gatgcgcgag cgacgcgagt 120  
tggcgcgtaa gggcattgctcg cggggccaaaaa gcgtggtgcc gctggccat gccgggtgg 180  
tgctgttcgt cgccggagaat ccgtcgcggc cgctgcagaa gatcagttag ctctacgatc 240  
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tccagttcgc cgacacccgc ggttacgcct atgaccgtcg tgacgtcacg ggtcggcagt 360  
tggccaatgt ctacgcgcag actctaggca ccatcttcac cgaacaggcc aagccctacg 420  
aggtttagtt gtgtgtggcc gaggtggcgc attacggcga gacgaaacgc cctgagttgt 480  
atcgattttt ctacgcacggg tcgatgcgcg acgagccgca tttcgtgggtg atggggcgca 540  
ccacggagcc gatgcacaac ggcgtcaaag agtctgtatgc cgagaacgcc agcctgaccg 600  
acgcccctgcg tatcgccggc gctgcattgc gggccggcag tgccgacacc tcgggtgggt 660  
atcaacccac ccttggcggt gccagcttag aggtggccgt tctcgatgcc aaccggccac 720  
ggcgcgcgtt ccggcgcata accggctccg ccctgcaagc gttgctggta gaccaggaaa 780  
gccccgcagtc tgacggcgaa tcgtcgggct gagtccgaaa gtccgacgcg tgcgtggac 840  
cccgctgcga cgttaactgc gcctaaccggc ggctcgacgc gtcggccggcc gtctgactt 900

<210> 60

<211> 248

<212> PRT

<213> Mycobacterium tuberculosis

<400> 60

Met Ser Phe Pro Tyr Phe Ile Ser Pro Glu Gln Ala Met Arg Glu Arg

1

5

10

15

Ser Glu Leu Ala Arg Lys Gly Ile Ala Arg Ala Lys Ser Val Val Ala  
20 25 30

Leu Ala Tyr Ala Gly Gly Val Leu Phe Val Ala Glu Asn Pro Ser Arg  
35 40 45

Ser Leu Gln Lys Ile Ser Glu Leu Tyr Asp Arg Val Gly Phe Ala Ala  
50 55 60

Ala Gly Lys Phe Asn Glu Phe Asp Asn Leu Arg Arg Gly Gly Ile Gln  
65 70 75 80

Phe Ala Asp Thr Arg Gly Tyr Ala Tyr Asp Arg Arg Asp Val Thr Gly  
85 90 95

Arg Gln Leu Ala Asn Val Tyr Ala Gln Thr Leu Gly Thr Ile Phe Thr  
100 105 110

Glu Gln Ala Lys Pro Tyr Glu Val Glu Leu Cys Val Ala Glu Val Ala  
115 120 125

His Tyr Gly Glu Thr Lys Arg Pro Glu Leu Tyr Arg Ile Thr Tyr Asp  
130 135 140

Gly Ser Ile Ala Asp Glu Pro His Phe Val Val Met Gly Gly Thr Thr  
145 150 155 160

Glu Pro Ile Ala Asn Ala Leu Lys Glu Ser Tyr Ala Glu Asn Ala Ser  
165 170 175

Leu Thr Asp Ala Leu Arg Ile Ala Val Ala Ala Leu Arg Ala Gly Ser  
180 185 190

Ala Asp Thr Ser Gly Gly Asp Gln Pro Thr Leu Gly Val Ala Ser Leu  
195 200 205

Glu Val Ala Val Leu Asp Ala Asn Arg Pro Arg Arg Ala Phe Arg Arg  
210 215 220

Ile Thr Gly Ser Ala Leu Gln Ala Leu Leu Val Asp Gln Glu Ser Pro  
225 230 235 240

Gln Ser Asp Gly Glu Ser Ser Gly  
245

<211> 1560

<212> DNA

<213> Mycobacterium tuberculosis

<400> 61

gagtcattgc ctggtcggcg tcattccgt a ctagtcggtt gtcggacttg acctactggg 60  
tcaggccac gagcaactcga ccatttagggt agggggccgtg acccaactatg acgtcgtcgt 120  
tctcggagcc ggtcccggcg ggtatgtcgc ggcgattcgc gccgcacagc tcggcctgag 180  
caactgcaatc gtcaaaccca agtactgggg cggagtatgc ctcaatgtcg gctgtatccc 240  
atccaaggcg ctgttgcgca acgcccgaact ggtccacatc ttcaccaagg acgccaaagc 300  
atttggcatc agccgcgagg tgaccttcga ctacggcata gcctatgacc gcagccgaaa 360  
ggtagccgag ggcagggtgg ccggtgtgca cttcctgtatg aagaagaaca agatcaccga 420  
gatccacggg tacggcacat ttgccgacgc caacacgttg ttgggtgatc tcaacgacgg 480  
cggtacagaa tcggtcacgt tcgacaacgc catcatcgcg accggcagta gcacccggct 540  
ggttcccgcc acctcactgt cggccaaacgt agtcacctac gaggaacaga tcctgtcccg 600  
agagctgccc aaatcgatca ttattgccc agctgggtgcc attggcatgg agttcggcta 660  
cgtgctgaag aactacggcg ttgacgtgac catcgtggaa ttccctccgc gggcgctgcc 720  
caacgaggac gccgatgtgt ccaaggagat cgagaagcag ttcaaaaagc tgggtgtcac 780  
gatcctgacc gccacgaagg tcgagtccat cgccgatggc gggtcgcagg tcaccgtgac 840  
cgtcaccaag gacggcgtgg cgcaagagct taaggcggaa aagggtgtgc agggcatcg 900  
atttgcgccc aacgtcgaag ggtacgggct ggacaaggca ggcgtcgcgc tgaccgaccg 960  
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cgaaaccatt gcccgtgcag agactttgac gctggcgcac catcgatgt tgccgcgcgc 1140  
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<210> 62

<211> 464

<212> PRT

<213> Mycobacterium tuberculosis

<400> 62

Met Thr His Tyr Asp Val Val Val Leu Gly Ala Gly Pro Gly Gly Tyr

1

5

10

15

Val Ala Ala Ile Arg Ala Ala Gln Leu Gly Leu Ser Thr Ala Ile Val

20

25

30

Glu Pro Lys Tyr Trp Gly Gly Val Cys Leu Asn Val Gly Cys Ile Pro

35

40

45

Ser Lys Ala Leu Leu Arg Asn Ala Glu Leu Val His Ile Phe Thr Lys

50

55

60

Asp Ala Lys Ala Phe Gly Ile Ser Gly Glu Val Thr Phe Asp Tyr Gly  
65 70 75 80

Ile Ala Tyr Asp Arg Ser Arg Lys Val Ala Glu Gly Arg Val Ala Gly  
85 90 95

Val His Phe Leu Met Lys Lys Asn Lys Ile Thr Glu Ile His Gly Tyr  
100 105 110

Gly Thr Phe Ala Asp Ala Asn Thr Leu Leu Val Asp Leu Asn Asp Gly  
115 120 125

Gly Thr Glu Ser Val Thr Phe Asp Asn Ala Ile Ile Ala Thr Gly Ser  
130 135 140

Ser Thr Arg Leu Val Pro Gly Thr Ser Leu Ser Ala Asn Val Val Thr  
145 150 155 160

Tyr Glu Glu Gln Ile Leu Ser Arg Glu Leu Pro Lys Ser Ile Ile Ile  
165 170 175

Ala Gly Ala Gly Ala Ile Gly Met Glu Phe Gly Tyr Val Leu Lys Asn  
180 185 190

Tyr Gly Val Asp Val Thr Ile Val Glu Phe Leu Pro Arg Ala Leu Pro  
195 200 205

Asn Glu Asp Ala Asp Val Ser Lys Glu Ile Glu Lys Gln Phe Lys Lys  
210 215 220

Leu Gly Val Thr Ile Leu Thr Ala Thr Lys Val Glu Ser Ile Ala Asp  
225 230 235 240

Gly Gly Ser Gln Val Thr Val Thr Lys Asp Gly Val Ala Gln  
245 250 255

Glu Leu Lys Ala Glu Lys Val Leu Gln Ala Ile Gly Phe Ala Pro Asn  
260 265 270

Val Glu Gly Tyr Gly Leu Asp Lys Ala Gly Val Ala Leu Thr Asp Arg  
275 280 285

Lys Ala Ile Gly Val Asp Asp Tyr Met Arg Thr Asn Val Gly His Ile  
290 295 300

Tyr Ala Ile Gly Asp Val Asn Gly Leu Leu Gln Leu Ala His Val Ala

305	310	315	320
Glu Ala Gln Gly Val Val Ala Ala Glu Thr Ile Ala Gly Ala Glu Thr			
325	330	335	
Leu Thr Leu Gly Asp His Arg Met Leu Pro Arg Ala Thr Phe Cys Gln			
340	345	350	
Pro Asn Val Ala Ser Phe Gly Leu Thr Glu Gln Gln Ala Arg Asn Glu			
355	360	365	
Gly Tyr Asp Val Val Val Ala Lys Phe Pro Phe Thr Ala Asn Ala Lys			
370	375	380	
Ala His Gly Val Gly Asp Pro Ser Gly Phe Val Lys Leu Val Ala Asp			
385	390	395	400
Ala Lys His Gly Glu Leu Leu Gly Gly His Leu Val Gly His Asp Val			
405	410	415	
Ala Glu Leu Leu Pro Glu Leu Thr Leu Ala Gln Arg Trp Asp Leu Thr			
420	425	430	
Ala Ser Glu Leu Ala Arg Asn Val His Thr His Pro Thr Met Ser Glu			
435	440	445	
Ala Leu Gln Glu Cys Phe His Gly Leu Val Gly His Met Ile Asn Phe			
450	455	460	

<210> 63  
 <211> 550  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 63  
 ggcccggtc gcggccgccc tgcaggaaaa gaaggcctgc ccaggcccag actcagccga 60  
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 cgaactgctg gacgogttca aggaaatgac cctgttggag ctctccgact tcgtcaagaa 180  
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 cgcggccggcc ggtgccgccc tcgaggctgc cgaggagcac tccgagttcg acgtgatcct 300  
 tgaggccgccc ggcgacaaga agatcggcgt catcaaggtg gtccgggaga tcgtttccgg 360  
 cctgggcctc aaggaggcca aggacctggt cgacggcgcgc cccaagccgc tgctggagaa 420  
 ggtcgccaag gaggccgccc acgaggccaa ggccaagctg gaggccgccc ggcgcaccgt 480  
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tgcgccccgt

550

<210> 64

<211> 130

<212> PRT

<213> Mycobacterium tuberculosis

<400> 64

Met Ala Lys Leu Ser Thr Asp Glu Leu Leu Asp Ala Phe Lys Glu Met

1

5

10

15

Thr Leu Leu Glu Leu Ser Asp Phe Val Lys Lys Phe Glu Glu Thr Phe

20

25

30

Glu Val Thr Ala Ala Ala Pro Val Ala Val Ala Ala Gly Ala Ala

35

40

45

Pro Ala Gly Ala Ala Val Glu Ala Ala Glu Glu Gln Ser Glu Phe Asp

50

55

60

Val Ile Leu Glu Ala Ala Gly Asp Lys Lys Ile Gly Val Ile Lys Val

65

70

75

80

Val Arg Glu Ile Val Ser Gly Leu Gly Leu Lys Glu Ala Lys Asp Leu

85

90

95

Val Asp Gly Ala Pro Lys Pro Leu Leu Glu Lys Val Ala Lys Glu Ala

100

105

110

Ala Asp Glu Ala Lys Ala Lys Leu Glu Ala Ala Gly Ala Thr Val Thr

115

120

125

Val Lys

130

<210> 65

<211> 900

<212> DNA

<213> Mycobacterium tuberculosis

<400> 65

tgaacgccat cgggtccaac gaacgcagcg ctacctgatc accaccgggt ctgttagggc 60

tcttccccag gtcgtacagt cgggccatgg ccattgaggt ttcgggtttg cgggtttca 120

ccgattcaga cgggaatttc ggtaatccgc tgggggtgat caacgcccagc aaggtcgaac 180

accgcgacag gcagcagctg gcagccaaat cgggctacag cggaaaccata ttctgtcgatc 240

ttcccgcccc cggctcaacc accgcacacag ccaccatcca tactccccgc accgaaattc 300

cgttcgcggg acacccgacc gtgggagcgt cctggtggt ggcgcgaggagg gggacgccaa 360

ttaacacgct gcaggtgccg gccggcatcg tccaggttag ctaccacggt gatctcacgg 420  
ccatcagcgc ccgcgtcgaa tgggcacccg agttcgccat ccacgacctg gattcaactg 480  
atgcgcgttc cgccgcccac cccgcccact ttccggacga catgcgcac tacctctgga 540  
cctggaccga ccgcgtccgct ggctcgctgc ggcgcgcacat gtttgcgc aacttggcg 600  
tcaccgaaga cgaagcgacc ggtgccgcgg ccatccggat taccgattac ctcagccgtg 660  
acctcaccat caccaggcga aaaggatcgt tgatccacac cacctggagt cccgaggcg 720  
gggttcgggt agccggccga gttgtcagcg acggtgtggc acaactcgac tgacgttagag 780  
ctcagcgctg ccgatgcaac acggcggcaa ggtgatcctg caggggttgc ccgaccgcgc 840  
gcatctgcaa cgagtagcga agctcgctgc cgatcgatgcg gtaggaacgg tcaagggcgg 900

<210> 66

<211> 228

<212> PRT

<213> Mycobacterium tuberculosis

<400> 66

Met Ala Ile Glu Val Ser Val Leu Arg Val Phe Thr Asp Ser Asp Gly

1 5 10 15

Asn Phe Gly Asn Pro Leu Gly Val Ile Asn Ala Ser Lys Val Glu His

20 25 30

Arg Asp Arg Gln Gln Leu Ala Ala Gln Ser Gly Tyr Ser Glu Thr Ile

35 40 45

Phe Val Asp Leu Pro Ser Pro Gly Ser Thr Thr Ala His Ala Thr Ile

50 55 60

His Thr Pro Arg Thr Glu Ile Pro Phe Ala Gly His Pro Thr Val Gly

65 70 75 80

Ala Ser Trp Trp Leu Arg Glu Arg Gly Thr Pro Ile Asn Thr Leu Gln

85 90 95

Val Pro Ala Gly Ile Val Gln Val Ser Tyr His Gly Asp Leu Thr Ala

100 105 110

Ile Ser Ala Arg Ser Glu Trp Ala Pro Glu Phe Ala Ile His Asp Leu

115 120 125

Asp Ser Leu Asp Ala Leu Ala Ala Asp Pro Ala Asp Phe Pro Asp

130 135 140

Asp Ile Ala His Tyr Leu Trp Thr Trp Thr Asp Arg Ser Ala Gly Ser

145 150 155 160

Leu Arg Ala Arg Met Phe Ala Ala Asn Leu Gly Val Thr Glu Asp Glu

165 170 175

Ala Thr Gly Ala Ala Ile Arg Ile Thr Asp Tyr Leu Ser Arg Asp  
180 185 190

Leu Thr Ile Thr Gln Gly Lys Gly Ser Leu Ile His Thr Thr Trp Ser  
195 200 205

Pro Glu Gly Trp Val Arg Val Ala Gly Arg Val Val Ser Asp Gly Val  
210 215 220

Ala Gln Leu Asp  
225

<210> 67

<211> 500

<212> DNA

<213> Mycobacterium tuberculosis

<400> 67

gtttgtggtg tcgggtgtct ggggggcgcc aactgggatt cgggtgggtt ggggtcaggt 60  
ccggcgatgg gcatcgagg tgggtgggt ttgggtgggg ccgggttcggg tccggcgatg 120  
ggcatggggg gtgtgggtgg tttgggtggg gccgggttcgg gtccggcgat gggcatgggg 180  
ggtgtgggtg gtttagatgc ggccgggtcc ggcgaggggcg gcttcctgc ggcgatcggc 240  
atcgaggatg gcgaggaggcg aggtgggggt ggggggtggcg gcggcggggc cgacacgaac 300  
cgctccgaca ggtcgctcgga cgtcgggggc ggagtctggc cggtggctt cggttaggttt 360  
gccgatgcgg ggcggcgccgg aaacgaagca ctgggtcgaa agaacggctg cgctgcccata 420  
tcgtccggag cttccataacc ttctgtcgccg cggaaagagct tgtcgttagtc ggccgcccattg 480  
acaacaccttc agagtgcgt 500

<210> 68

<211> 139

<212> PRT

<213> Mycobacterium tuberculosis

<400> 68

Met Gly Ala Gly Pro Ala Met Gly Ile Gly Gly Val Gly Gly Leu Gly  
1 5 10 15

Gly Ala Gly Ser Gly Pro Ala Met Gly Met Gly Gly Val Gly Gly Leu  
20 25 30

Gly Gly Ala Gly Ser Gly Pro Ala Met Gly Met Gly Gly Val Gly Gly  
35 40 45

Leu Asp Ala Ala Gly Ser Gly Glu Gly Gly Ser Pro Ala Ala Ile Gly  
50 55 60

Ile Gly Val Gly  
65 70 75 80

Ala Asp Thr Asn Arg Ser Asp Arg Ser Ser Asp Val Gly Gly Gly Val  
85 90 95

Trp Pro Leu Gly Phe Gly Arg Phe Ala Asp Ala Gly Ala Gly Gly Asn  
100 105 110

Glu Ala Leu Gly Ser Lys Asn Gly Cys Ala Ala Ile Ser Ser Gly Ala  
115 120 125

Ser Ile Pro Ser Cys Gly Arg Lys Ser Leu Ser  
130 135

<210> 69

<211> 2050

<212> DNA

<213> Mycobacterium tuberculosis

<400> 69

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ccgcggcgc cgcacatcgcc aaacctaccg aagcccaacg gccagactcc gccccggacg 180  
tccgacgacc tgcggagcg gttcgtgtcg gccccggcc cgccacccccc acccccacct 240  
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gcatctaaac caccacacc ccccatgccc atgcgggac cgaaccggc cccacccaaa 360  
ccacccacac ccccatgccc catgcccggc cccgaaccgg ccccacccaa accacccaca 420  
ccatccgatgc ccattcgccg acctgcaccc accccaaccc aatcccgatg ggccgggggg 480  
agaccaccga caccacaaac gccaaccggc gcgcgcgcg aaccggaatc accggcgccc 540  
cacgtaccct cgacacggcc acatcaaccc cggcgacccg caccagcacc gcccggca 600  
aagatgccaa tggcgacc cccggccgct ccgtccagac cgtctgcgtc cccggccgaa 660  
ccaccgaccc ggctgtcccc ccaacactcc cgacgtgcgc gccggggta ccgtatcg 720  
acagacacccg aacgaaacgt cggaaaggta gcaactggtc catccatcca ggcgcggctg 780  
cgggcagagg aagcatccgg cgccgcagtc gccccggaa cggagccctc gccagcgccg 840  
ttgggccaac cgagatcgta tctggctccg cccacccggc cgcgcggac agaacctccc 900  
cccagccct cgccgcagcg caactccggt cggcgatggc agcgacgcgt ccaccccgat 960  
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cgtcggcga agcgtgcagc gccggatctc gacgcacac agaaatcctt aaggccggcg 1080  
gccaaggggc cgaagggtgaa gaagggtgaa ccccagaaac cgaaggccac gaagccccc 1140  
aaagtgggtg cgcagcgccg ctggcgacat tgggtgcgt cgttgcgcg aatcaacctg 1200  
ggcctgtcacc cgcacggaa gtacgagctg gacctgcacg ctcgagtcgg cgcacatccc 1260  
cgccgggtcgat atcagatcgcc cgtcgatcggt ctcaaaagggt gggctggcaa aaccacgctg 1320  
acagcagcgat tggggatcgac gtggatcgat gtcggcccg accggatccct ggctctagac 1380  
gcggatcccg gcccggaaa cctcgccgat cgggtaggc gacaatcgcc cgcgaccatc 1440  
gctgatgtgc ttgcagaaaa agagctgtcg cactacaacg acatccgcgc acacactagc 1500  
gtcaatgcgg tcaatctgga agtgctgcgc gcacccggat acagctcgcc gcagecgccg 1560

Ser His Gly Pro His Gln Pro Arg Arg Thr Ala Pro Ala Pro Pro Trp  
180 185 190

Ala Lys Met Pro Ile Gly Glu Pro Pro Pro Ala Pro Ser Arg Pro Ser  
195 200 205

Ala Ser Pro Ala Glu Pro Pro Thr Arg Pro Ala Pro Gln His Ser Arg  
210 215 220

Arg Ala Arg Arg Gly His Arg Tyr Arg Thr Asp Thr Glu Arg Asn Val  
225 230 235 240

Gly Lys Val Ala Thr Gly Pro Ser Ile Gln Ala Arg Leu Arg Ala Glu  
245 250 255

Glu Ala Ser Gly Ala Gln Leu Ala Pro Gly Thr Glu Pro Ser Pro Ala  
260 265 270

Pro Leu Gly Gln Pro Arg Ser Tyr Leu Ala Pro Pro Thr Arg Pro Ala  
275 280 285

Pro Thr Glu Pro Pro Pro Ser Pro Gln Arg Asn Ser Gly Arg  
290 295 300

Arg Ala Glu Arg Arg Val His Pro Asp Leu Ala Ala Gln His Ala Ala  
305 310 315 320

Ala Gln Pro Asp Ser Ile Thr Ala Ala Thr Thr Gly Gly Arg Arg Arg  
325 330 335

Lys Arg Ala Ala Pro Asp Leu Asp Ala Thr Gln Lys Ser Leu Arg Pro  
340 345 350

Ala Ala Lys Gly Pro Lys Val Lys Lys Val Lys Pro Gln Lys Pro Lys  
355 360 365

Ala Thr Lys Pro Pro Lys Val Val Ser Gln Arg Gly Trp Arg His Trp  
370 375 380

Val His Ala Leu Thr Arg Ile Asn Leu Gly Leu Ser Pro Asp Glu Lys  
385 390 395 400

Tyr Glu Leu Asp Leu His Ala Arg Val Arg Arg Asn Pro Arg Gly Ser  
405 410 415

Tyr Gln Ile Ala Val Val Gly Leu Lys Gly Gly Ala Gly Lys Thr Thr  
420 425 430

Leu Thr Ala Ala Leu Gly Ser Thr Leu Ala Gln Val Arg Ala Asp Arg  
435 440 445

Ile Leu Ala Leu Asp Ala Asp Pro Gly Ala Gly Asn Leu Ala Asp Arg  
450 455 460

Val Gly Arg Gln Ser Gly Ala Thr Ile Ala Asp Val Leu Ala Glu Lys  
465 470 475 480

Glu Leu Ser His Tyr Asn Asp Ile Arg Ala His Thr Ser Val Asn Ala  
485 490 495

Val Asn Leu Glu Val Leu Pro Ala Pro Glu Tyr Ser Ser Ala Gln Arg  
500 505 510

Ala Leu Ser Asp Ala Asp Trp His Phe Ile Ala Asp Pro Ala Ser Arg  
515 520 525

Phe Tyr Asn Leu Val Leu Ala Asp Cys Gly Ala Gly Phe Phe Asp Pro  
530 535 540

Leu Thr Arg Gly Val Leu Ser Thr Val Ser Gly Val Val Val Val Ala  
545 550 555 560

Ser Val Ser Ile Asp Gly Ala Gln Gln Ala Ser Val Ala Leu Asp Trp  
565 570 575

Leu Arg Asn Asn Gly Tyr Gln Asp Leu Ala Ser Arg Ala Cys Val Val  
580 585 590

Ile Asn His Ile Met Pro Gly Glu Pro Asn Val Ala Val Lys Asp Leu  
595 600 605

Val Arg His Phe Glu Gln Gln Val Gln Pro Gly Arg Val Val Val Met  
610 615 620

Pro Trp Asp Arg His Ile Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu  
625 630 635 640

Leu Asp Pro Ile Tyr Lys Arg Lys Val Leu Glu Leu Ala Ala Leu  
645 650 655

Ser Asp Asp Phe Glu Arg Ala Gly Arg Arg  
660 665

<211> 1890

<212> DNA

<213> Mycobacterium tuberculosis

<400> 71

gcagcgatga ggaggagcgg cgccaacggc ccgcgcggc gacgatgcaa agcgcgacgaa 60  
tgaggaggag cggcgccat gactgctgaa ccggaagtac ggacgctgca cgagggttg 120  
ctggaccagg tcggcactgc tgaatcggt gcgtacaaga tgtggctgcc gccgttgacc 180  
aatccggtcc cgctcaacga gctcatcgcc cgtgatcgcc gacaacccct gcgatttgcc 240  
ctggggatca tggatgaacc ggcgcggcat ctacaggatg tgtggggcgt agacgttcc 300  
ggggccggcg gcaacatcg tattggggc gcacccaaa ccgggaagtc gacgctactg 360  
cagacgatgg tggatcgcc cggcccccaca cactcaccgc gcaacgttca gttctattgc 420  
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gccaatcggt cggagccga caaggtcaac cgggtggcgt cagagatgca agccgtcatg 540  
cgcaacggg aaaccaccc caaggaacac cagatgggct cgtatgggat gtaccggcag 600  
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atcgacggat ggcccggtt tggatcgcc tttcccgacc ttgaggggca gttcaagat 720  
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ccgacaatgt tcccttcggg cggacaccca gaattccat ccagttagttt caaggtcaag 1740  
cgccgcggcc ctttctcgcc tcgcccacgc gcaaaagaggt catccaggcc 1800  
ccctacatcg agcctccaga agaagtgttc gcaacccca caagcgccgg ttaagattat 1860  
ttcattgcgg gtgtacggc acccgagatc 1890

<210> 72

<211> 591

<212> PRT

<213> Mycobacterium tuberculosis

<400> 72

Met Thr Ala Glu Pro Glu Val Arg Thr Leu Arg Glu Val Val Leu Asp

1

5

10

15

Gln Leu Gly Thr Ala Glu Ser Arg Ala Tyr Lys Met Trp Leu Pro Pro

275

280

285

Arg Phe Asp Gly Val His Ser Ala Asp Asn Leu Val Glu Ala Ile Thr  
 290 295 300

Ala Gly Val Thr Gln Ile Ala Ser Gln His Thr Glu Gln Ala Pro Pro  
 305 310 315 320

Val Arg Val Leu Pro Glu Arg Ile His Leu His Glu Leu Asp Pro Asn  
 325 330 335

Pro Pro Gly Pro Glu Ser Asp Tyr Arg Thr Arg Trp Glu Ile Pro Ile  
 340 345 350

Gly Leu Arg Glu Thr Asp Leu Thr Pro Ala His Cys His Met His Thr  
 355 360 365

Asn Pro His Leu Leu Ile Phe Gly Ala Ala Lys Ser Gly Lys Thr Thr  
 370 375 380

Ile Ala His Ala Ile Ala Arg Ala Ile Cys Ala Arg Asn Ser Pro Gln  
 385 390 395 400

Gln Val Arg Phe Met Leu Ala Asp Tyr Arg Ser Gly Leu Leu Asp Ala  
 405 410 415

Val Pro Asp Thr His Leu Leu Gly Ala Gly Ala Ile Asn Arg Asn Ser  
 420 425 430

Ala Ser Leu Asp Glu Ala Ala Gln Ala Leu Ala Val Asn Leu Lys Lys  
 435 440 445

Arg Leu Pro Pro Thr Asp Leu Thr Thr Ala Gln Leu Arg Ser Arg Ser  
 450 455 460

Trp Trp Ser Gly Phe Asp Val Val Leu Leu Val Asp Asp Trp His Met  
 465 470 475 480

Ile Val Gly Ala Ala Gly Gly Met Pro Pro Met Ala Pro Leu Ala Pro  
 485 490 495

Leu Leu Pro Ala Ala Ala Asp Ile Gly Leu His Ile Ile Val Thr Cys  
 500 505 510

Gln Met Ser Gln Ala Tyr Lys Ala Thr Met Asp Lys Phe Val Gly Ala  
 515 520 525

Ala Phe Gly Ser Gly Ala Pro Thr Met Phe Leu Ser Gly Glu Lys Gln

530

535

540

Glu Phe Pro Ser Ser Glu Phe Lys Val Lys Arg Arg Pro Pro Gly Gln  
545 550 555 560

Ala Phe Leu Val Ser Pro Asp Gly Lys Glu Val Ile Gln Ala Pro Tyr  
565 570 575

Ile Glu Pro Pro Glu Glu Val Phe Ala Ala Pro Pro Ser Ala Gly  
580 585 590

<210> 73

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 73

Asp Pro Val Asp Asp Ala Phe Ile Ala Lys Leu Asn Thr Ala Gly  
1 5 10 15

<210> 74

<211> 14

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (14)

<223> Xaa is unknown

<400> 74

Asp Pro Val Asp Ala Ile Ile Asn Leu Asp Asn Tyr Gly Xaa  
1 5 10

<210> 75

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (5)

<223> Xaa is unknown

<400> 75

Ala Glu Met Lys Xaa Phe Lys Asn Ala Ile Val Gln Glu Ile Asp  
1 5 10 15

<210> 76  
<211> 14  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> VARIANT  
<222> (3)  
<223> Ala is Ala or Gln

<220>  
<221> VARIANT  
<222> (7)  
<223> Thr is Gly or Thr

<220>  
<221> UNSURE  
<222> (11)  
<223> Xaa is unknown

<400> 76  
Val Ile Ala Gly Met Val Thr His Ile His Xaa Val Ala Gly  
1 5 10

<210> 77  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 77  
Thr Asn Ile Val Val Leu Ile Lys Gln Val Pro Asp Thr Trp Ser  
1 5 10 15

<210> 78  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 78  
Ala Ile Glu Val Ser Val Leu Arg Val Phe Thr Asp Ser Asp Gly  
1 5 10 15

<210> 79  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 79  
Ala Lys Leu Ser Thr Asp Glu Leu Leu Asp Ala Phe Lys Glu Met  
1 5 10 15

<210> 80  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> VARIANT  
<222> (4)  
<223> Asp is Asp or Glu

<400> 80  
Asp Pro Ala Asp Ala Pro Asp Val Pro Thr Ala Ala Gln Leu Thr  
1 5 10 15

<210> 81  
<211> 50  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 81  
Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val  
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu  
20 25 30

Glu Ser Met Tyr Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr  
35 40 45

Val Ser  
50

<210> 82  
<211> 15  
<212> PRT

<213> Mycobacterium tuberculosis

<400> 82

Thr Thr Ser Pro Asp Pro Tyr Ala Ala Leu Pro Lys Leu Pro Ser  
1 5 10 15

<210> 83

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 83

Thr Glu Tyr Glu Gly Pro Lys Thr Lys Phe His Ala Leu Met Gln  
1 5 10 15

<210> 84

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 84

Thr Thr Ile Val Ala Leu Lys Tyr Pro Gly Gly Val Val Met Ala  
1 5 10 15

<210> 85

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (10)

<223> Xaa is unknown

<220>

<221> UNSURE

<222> (15)

<223> Xaa is unknown

<400> 85

Ser Phe Pro Tyr Phe Ile Ser Pro Glu Xaa Ala Met Arg Glu Xaa  
1 5 10 15

<210> 86

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 86

Thr His Tyr Asp Val Val Val Leu Gly Ala Gly Pro Gly Gly Tyr

1

5

10

15

<210> 87

<211> 450

<212> DNA

<213> Mycobacterium tuberculosis

<400> 87

agcccggtaa tcgagttcgg gcaatgctga ccatcggtt tggccgc tataaccgaa 60  
cggttgtgt acggataca aatacaggga gggagaagt aggcaaatgg aaaaaatgtc 120  
acatgatccg atcgctgcgc acattggcac gcaagtgagc gacaacgctc tgacggcgt 180  
gacggccggc tcgacggcgc tgacgtcggt gaccggcgt gttccgcgg gggcgatga 240  
gtctccgcc caagccgca cggcggtcac atcggaggc atccaattgc tggcttcaa 300  
tgcatcgccc caagaccagc tccaccgtgc gggcgaagcg gtccaggacg tcgcccgcac 360  
ctattcgcaa atcgacgacg ggcgcgcgg cgtttcgcc taataggccc ccaacacatc 420  
ggagggagtg atcaccatgc tgtggcacgc 450

<210> 88

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 88

Met Glu Lys Met Ser His Asp Pro Ile Ala Ala Asp Ile Gly Thr Gln

1

5

10

15

Val Ser Asp Asn Ala Leu His Gly Val Thr Ala Gly Ser Thr Ala Leu

20

25

30

Thr Ser Val Thr Gly Leu Val Pro Ala Gly Ala Asp Glu Val Ser Ala

35

40

45

Gln Ala Ala Thr Ala Phe Thr Ser Glu Gly Ile Gln Leu Leu Ala Ser

50

55

60

Asn Ala Ser Ala Gln Asp Gln Leu His Arg Ala Gly Glu Ala Val Gln

65

70

75

80

Asp Val Ala Arg Thr Tyr Ser Gln Ile Asp Asp Gly Ala Ala Gly Val

85

90

95

Phe Ala

<210> 89  
<211> 460  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 89  
gcaaccggct tttcgatcatc ctgagacatc agcggcgtgc gggtaaacga cccacctgcg 60  
ccaggttagcg actccgcgcg cagcaggccc gcgcggcgc tggggcctga tccaccagcc 120  
agcggatggt tcgacagcgg actgggtccg agcaggccca tctgcgcggc ttcctcgctg 180  
gttgggttgc cgccgcccgt gccgcccacc tggctgaaca acgacgtcac ctgctgcagc 240  
ggctgggtca gctgctgcat cgggcccgtc atctcaccca gttggccag ggtctggta 300  
gccgcggcg gcaactggcc aaccgggttt gagctgccag gggagggcat tccgaagatc 360  
gggttcgtcg tgctctggct cgcgcggga tcaaggatcg acgccccatcg ctcgagcttc 420  
tcgaaaagcg tgttaaccgc ggtctcgcc tgtagacct 460

<210> 90  
<211> 139  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 90  
Met Arg Val Asn Asp Pro Pro Ala Pro Gly Ser Asp Ser Ala Arg Ser  
1 5 10 15  
Arg Pro Ala Pro Ala Leu Gly Pro Asp Pro Pro Ala Ser Gly Trp Phe  
20 25 30  
Asp Ser Gly Leu Val Pro Ser Arg Pro Ile Cys Ala Ala Ser Ser Ser  
35 40 45  
Ala Gly Leu Pro Pro Pro Val Pro Pro Thr Trp Leu Asn Asn Asp Val  
50 55 60  
Thr Cys Cys Ser Gly Trp Val Ser Cys Cys Ile Gly Pro Leu Ile Ser  
65 70 75 80  
Pro Ser Trp Pro Arg Val Trp Val Ala Ala Gly Gly Asn Trp Pro Thr  
85 90 95  
Gly Val Glu Leu Pro Gly Glu Gly Ile Pro Lys Ile Gly Phe Val Val  
100 105 110  
Leu Trp Leu Ala Pro Gly Ser Arg Ile Asp Ala Ile Gly Ser Ser Phe  
115 120 125

Ser Lys Ser Val Leu Thr Ala Val Ser Ala Trp  
130 135

<210> 91  
<211> 1200  
<212> DNA  
<213> *Mycobacterium tuberculosis*

<400> 91  
taataggccc ccaacacatc ggagggagtg atcaccatgc tgtggcacgc aatgccaccg 60  
gagctaaata ccgcacggct gatggccggc gcgggtccgg ctccaatgtc tgcggcgccc 120  
gcgggatggc agacgcttgc ggcggctctg gacgctcagg ccgtcgagtt gaccgcgcgc 180  
ctgaactctc tggagaagc ctggacttggc ggtggcagcg acaaggcgct tgcggctgca 240  
acgcccgttggc tggctctggct acaaaccgcg tcaacacagg ccaagaccgg tgcgatgcag 300  
gacgcgcgcg aagccgcggc atacacccag gccatggcca cgacgcgcgc gctgcccggag 360  
atcgccgcca accacatcac ccaggccgtc cttacggcca ccaacttctt cggtatcaac 420  
acgatcccga tcgcgttgac cgagatggat tatttcattcc gtatgtggaa ccaggcagcc 480  
ctggcaatgg aggtctacca ggcggagacc gcggttaaca cgctttcga gaagctcgag 540  
ccgatggcggt cgatccttga tcccggcgcg agccagagca cgacgaacccc gatcttcgga 600  
atgcccctccc ctggcagctc aacaccgggtt ggccagttgc cgccggcgccc tacccagacc 660  
ctcgcccaac tgggtgagat gagcggcccg atgcagcagc tgaccaggcc gctgcagcag 720  
gtgacgtcggt tggcagcca ggtggcgcc accggcgccgc gcaacccagc cgacgaggaa 780  
gccgcgcaga tgggcctgct cggcaccagt cggctgtcga accatccgct ggctggtgaa 840  
tcaggccccca gcgcggggcgccc gggcctgctc cgccggaggt cgctacctgg cgcagggtggg 900  
tcgttgcacc cgcacgcgcgt gatgtctcag ctgatcgaaa agccgggtgc cccctcggtg 960  
atgcccggcg ctgctggccgg atcgtcgccgc acgggtggcg cggctccgggt gggtgccggga 1020  
gcatggggcc agggtgccgc atccggcgcc tccaccaggc cgggtctggc cgcgcggcga 1080  
ccgctcgccgc aggagcgtga agaagacgac gaggacgact gggacgaaga ggacgacttgg 1140  
ttagctcccg taatgacaac agacttcccg gccaccggc ccggaaagact tgccaaacatt 1200

<210> 92  
<211> 371  
<212> PRT  
<213> *Mycobacterium tuberculosis*

<400> 92  
Met Ile Thr Met Leu Trp His Ala Met Pro Pro Glu Leu Asn Thr Ala  
1 5 10 15

Arg Leu Met Ala Gly Ala Gly Pro Ala Pro Met Leu Ala Ala Ala Ala  
20 25 30

Gly Trp Gln Thr Leu Ser Ala Ala Leu Asp Ala Gln Ala Val Glu Leu  
35 40 45

Thr Ala Arg Leu Asn Ser Leu Gly Glu Ala Trp Thr Gly Gly Gly Ser

50

55

60

Asp Lys Ala Leu Ala Ala Ala Thr Pro Met Val Val Trp Leu Gln Thr  
 65 70 75 80

Ala Ser Thr Gln Ala Lys Thr Arg Ala Met Gln Ala Thr Ala Gln Ala  
 85 90 95

Ala Ala Tyr Thr Gln Ala Met Ala Thr Thr Pro Ser Leu Pro Glu Ile  
 100 105 110

Ala Ala Asn His Ile Thr Gln Ala Val Leu Thr Ala Thr Asn Phe Phe  
 115 120 125

Gly Ile Asn Thr Ile Pro Ile Ala Leu Thr Glu Met Asp Tyr Phe Ile  
 130 135 140

Arg Met Trp Asn Gln Ala Ala Leu Ala Met Glu Val Tyr Gln Ala Glu  
 145 150 155 160

Thr Ala Val Asn Thr Leu Phe Glu Lys Leu Glu Pro Met Ala Ser Ile  
 165 170 175

Leu Asp Pro Gly Ala Ser Gln Ser Thr Thr Asn Pro Ile Phe Gly Met  
 180 185 190

Pro Ser Pro Gly Ser Ser Thr Pro Val Gly Gln Leu Pro Pro Ala Ala  
 195 200 205

Thr Gln Thr Leu Gly Gln Leu Gly Glu Met Ser Gly Pro Met Gln Gln  
 210 215 220

Leu Thr Gln Pro Leu Gln Gln Val Thr Ser Leu Phe Ser Gln Val Gly  
 225 230 235 240

Gly Thr Gly Gly Asn Pro Ala Asp Glu Glu Ala Ala Gln Met Gly  
 245 250 255

Leu Leu Gly Thr Ser Pro Leu Ser Asn His Pro Leu Ala Gly Gly Ser  
 260 265 270

Gly Pro Ser Ala Gly Ala Gly Leu Leu Arg Ala Glu Ser Leu Pro Gly  
 275 280 285

Ala Gly Gly Ser Leu Thr Arg Thr Pro Leu Met Ser Gln Leu Ile Glu  
 290 295 300

Lys Pro Val Ala Pro Ser Val Met Pro Ala Ala Ala Gly Ser Ser

305

310

315

320

Ala Thr Gly Gly Ala Ala Pro Val Gly Ala Gly Ala Met Gly Gln Gly  
325 330 335

Ala Gln Ser Gly Gly Ser Thr Arg Pro Gly Leu Val Ala Pro Ala Pro  
340 345 350

Leu Ala Gln Glu Arg Glu Glu Asp Asp Glu Asp Asp Trp Asp Glu Glu  
355 360 365

Asp Asp Trp  
370

<210> 93  
<211> 1000  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 93  
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ccccagaaac cgaaggccac gaagccgccc aaagtggtgt cgccagcgcgg ctggcgacat 120  
tgggtgcattt cggtgacgcg aatcaacctt ggccgttcac ccgacgagaa gtacgagctg 180  
gacctgcacg ctcgagtcgg ccgcaatccc cgcgggtcgat atcagatcgc cgtcgctgg 240  
ctcaaagggtt gggctggcaa aaccacgcgt acagcagcgt tgggtcgac gttggctcag 300  
gtgcgggccc accggatcctt ggctctagac gcggatccag ggcggggaaa cctcgccgat 360  
cgggttagggc gacaatcggg cgcgaccatc gctgtatgtc ttgcagaaaa agagctgtcg 420  
cactacaacg acatccgcgc acacacttagc gtcaatgcgg tcaatctggaa agtgcgtccg 480  
gcacccgaaat acagctcgcc gcagcgcgcg ctcagcgcacg ccgactggca tttcatcgcc 540  
gtcctgcgtt cgaggttttt caacctcgcc ttggctgattt gtggggccgg cttcttcgac 600  
ccgctgaccc gcggcgtgct gtccacggcg tccgggtcg tggcgtggc aagtgtctca 660  
atcgacggcg cacaacaggc gtccgtcgat ttggactgggt tgcccaacaa cggttaccaa 720  
gatttggcgaa gccgcgcattt cgtggatcatc aatcacatca tgccgggaga acccaatgtc 780  
gcagttaaag acctgggtcgat gcatttcgaa cagcaagttt aacccggccg ggtcgtggc 840  
atgccgtggg acaggcacat tgccggccgaa accgagattt cactcgactt gctcgaccct 900  
atctacaacg gcaaggtcctt cgaattggcc gcagcgctat ccgacgattt cgagagggtt 960  
ggacgtcggtt gagcgcaccc gctgttgcgtt ctggccctac 1000

<210> 94  
<211> 308  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 94  
Met Lys Lys Val Lys Pro Gln Lys Pro Lys Ala Thr Lys Pro Pro Lys  
1 5 10 15

Val	Val	Ser	Gln	Arg	Gly	Trp	Arg	His	Trp	Val	His	Ala	Leu	Thr	Arg
	20					25								30	
Ile	Asn	Leu	Gly	Leu	Ser	Pro	Asp	Glu	Lys	Tyr	Glu	Leu	Asp	Leu	His
	35				40									45	
Ala	Arg	Val	Arg	Arg	Asn	Pro	Arg	Gly	Ser	Tyr	Gln	Ile	Ala	Val	Val
	50				55							60			
Gly	Leu	Lys	Gly	Gly	Ala	Gly	Lys	Thr	Thr	Leu	Thr	Ala	Ala	Leu	Gly
	65			70				75						80	
Ser	Thr	Leu	Ala	Gln	Val	Arg	Ala	Asp	Arg	Ile	Leu	Ala	Leu	Asp	Ala
	85					90								95	
Asp	Pro	Gly	Ala	Gly	Asn	Leu	Ala	Asp	Arg	Val	Gly	Arg	Gln	Ser	Gly
	100				105							110			
Ala	Thr	Ile	Ala	Asp	Val	Leu	Ala	Glu	Lys	Glu	Leu	Ser	His	Tyr	Asn
	115				120							125			
Asp	Ile	Arg	Ala	His	Thr	Ser	Val	Asn	Ala	Val	Asn	Leu	Glu	Val	Leu
	130				135							140			
Pro	Ala	Pro	Glu	Tyr	Ser	Ser	Ala	Gln	Arg	Ala	Leu	Ser	Asp	Ala	Asp
	145			150			155						160		
Trp	His	Phe	Ile	Ala	Asp	Pro	Ala	Ser	Arg	Phe	Tyr	Asn	Leu	Val	Leu
	165					170						175			
Ala	Asp	Cys	Gly	Ala	Gly	Phe	Phe	Asp	Pro	Leu	Thr	Arg	Gly	Val	Leu
	180				185							190			
Ser	Thr	Val	Ser	Gly	Val	Val	Val	Val	Ala	Ser	Val	Ser	Ile	Asp	Gly
	195				200							205			
Ala	Gln	Gln	Ala	Ser	Val	Ala	Leu	Asp	Trp	Leu	Arg	Asn	Asn	Gly	Tyr
	210				215							220			
Gln	Asp	Leu	Ala	Ser	Arg	Ala	Cys	Val	Val	Ile	Asn	His	Ile	Met	Pro
	225			230				235					240		
Gly	Glu	Pro	Asn	Val	Ala	Val	Lys	Asp	Leu	Val	Arg	His	Phe	Glu	Gln
	245					250						255			
Gln	Val	Gln	Pro	Gly	Arg	Val	Val	Val	Met	Pro	Trp	Asp	Arg	His	Ile
	260				265							270			

Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu Leu Asp Pro Ile Tyr Lys  
275 280 285

Arg Lys Val Leu Glu Leu Ala Ala Leu Ser Asp Asp Phe Glu Arg  
290 295 300

Ala Gly Arg Arg  
305

<210> 95  
<211> 34  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 95  
aagagtagat ctatgatggc cgaggatgtt cgcg 34

<210> 96  
<211> 27  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 96  
cggcgacgac ggatccctacc gcgtcgg 27

<210> 97  
<211> 28  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 97  
ccttgggaga tctttggacc ccgggttgc 28

<210> 98  
<211> 25  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 98  
gacgagatct tatgggctta ctgac 25

<210> 99  
<211> 33  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 99

ccccccagat ctgcaccacc ggcatcgcg ggc 33

<210> 100  
<211> 24  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 100  
gcggcggatc cgttgcttag ccgg 24

<210> 101  
<211> 32  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 101  
ccggctgaga tctatgacag aatacgaagg gc 32

<210> 102  
<211> 24  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 102  
ccccgccagg gaactagagg cgcc 24

<210> 103  
<211> 38  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 103  
ctgcccagat ctaccaccat tgtcgcgtg aaataccc 38

<210> 104  
<211> 25  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 104  
cgcccatggcc ttacgcgcca actcg 25

<210> 105  
<211> 32  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 105

ggcggagatc tgtgagttt ccgtatttca tc 32  
<210> 106  
<211> 25  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 106 25  
cgcgtcgagc catggtagg cgtag

<210> 107  
<211> 32  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 107 32  
gaggaagatc tatgacaact tcacccgacc cg

<210> 108  
<211> 28  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 108 28  
catgaagcca tggccgcag gctgcatg

<210> 109  
<211> 33  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 109 33  
ggccgagatc tgtgacccac tatgacgtcg tcg

<210> 110  
<211> 36  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 110 36  
ggcgcccatg gtcagaaatt gatcatgtgg ccaacc

<210> 111  
<211> 33  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 111

ccgggagatc tatggcaaag ctctccaccg acg 33  
<210> 112  
<211> 32  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 112  
cgctggcag agctacttga cggtgacggt gg 32  
<210> 113  
<211> 36  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 113  
ggcccagatc tatggccatt gaggttcgg tttgc 36  
<210> 114  
<211> 26  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 114  
cgccgtgttg catggcagcg ctgagc 26  
<210> 115  
<211> 24  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 115  
ggacgttcaa gcgacacatc gccg 24  
<210> 116  
<211> 24  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 116  
cagcacgaac gcgcgcgtcga tggc 24  
<210> 117  
<211> 26  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 117

acagatctgt gacggacatg aaccgg 26  
  
<210> 118  
<211> 28  
<212> DNA  
<213> Mycobacterium tuberculosis  
  
<400> 118 28  
tttccatgg tcacggggccc ccggtaact  
  
<210> 119  
<211> 26  
<212> DNA  
<213> Mycobacterium tuberculosis  
  
<400> 119 26  
acagatctgt gccccatggca cagata  
  
<210> 120  
<211> 27  
<212> DNA  
<213> Mycobacterium tuberculosis  
  
<400> 120 27  
tttaagttc taggcgccca gcgccgc  
  
<210> 121  
<211> 26  
<212> DNA  
<213> Mycobacterium tuberculosis  
  
<400> 121 26  
acagatctgc gcatgcggat ccgttgt  
  
<210> 122  
<211> 28  
<212> DNA  
<213> Mycobacterium tuberculosis  
  
<400> 122 28  
tttccatgg tcatccggcg tgatcgag  
  
<210> 123  
<211> 26  
<212> DNA  
<213> Mycobacterium tuberculosis  
  
<400> 123

acagatctgt aatggcagac tgtgat

26

<210> 124

<211> 28

<212> DNA

<213> Mycobacterium tuberculosis

<400> 124

ttttccatgg tcaggagatg gtgatcga

28

<210> 125

<211> 26

<212> DNA

<213> Mycobacterium tuberculosis

<400> 125

acagatctgc cggctacccc ggtgcc

26

<210> 126

<211> 28

<212> DNA

<213> Mycobacterium tuberculosis

<400> 126

ttttccatgg ctattgcagc tttccggc

28

<210> 127

<211> 50

<212> PRT

<213> Mycobacterium tuberculosis

<400> 127

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val

1

5

10

15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu

20

25

30

Glu Ser Met Tyr Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr

35

40

45

Val Ser

50

<210> 128

<211> 49

<212> PRT

<213> Mycobacterium tuberculosis

<400> 128

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val  
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu  
20 25 30

Glu Ser Met Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr Val  
35 40 45

Ser

<210> 129

<211> 50

<212> PRT

<213> Mycobacterium tuberculosis

<400> 129

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val  
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu  
20 25 30

Glu Ser Met Lys Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr  
35 40 45

Val Ser

50

<210> 130

<211> 33

<212> DNA

<213> Mycobacterium tuberculosis

<400> 130

ccggggagatc tatggcaaag ctctccacccg acg 33

<210> 131

<211> 32

<212> DNA

<213> Mycobacterium tuberculosis

<400> 131  
cgctggcag agctacttga cggtgacggt gg 32

<210> 132  
<211> 36  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 132  
ggcgccggca agcttgccat gacagagcag cagtgg 36

<210> 133  
<211> 26  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 133  
cgaactcgcc ggatcccgta tttcgc 26

<210> 134  
<211> 32  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 134  
ggcaaccgcg agattttct cccggccggg gc 32

<210> 135  
<211> 27  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 135  
ggcaagcttg ccggcgccata acgaaact 27

<210> 136  
<211> 30  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 136  
ggaccaggat ctatgacaga gcagcagtgg 30

<210> 137  
<211> 47  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 137

cggcgagccc cggccgggag aaaagctttg cgaacatccc agtgacg

47

<210> 138

<211> 44

<212> DNA

<213> Mycobacterium tuberculosis

<400> 138

gttcgcaaag ctttctccc ggccggggct gccggtcgag tacc

44

<210> 139

<211> 20

<212> DNA

<213> Mycobacterium tuberculosis

<400> 139

ccttcggtgg atcccgtag

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<210> 140

<211> 450

<212> DNA

<213> Mycobacterium tuberculosis

<400> 140

tggcgctgtc accgaggaac ctgtcaatgt cgtcgagcag tactgaacct ttccgagaaa 60  
ggccagcatg aacgtcaccg tatccattcc gaccatcctg cggccccaca ccggcggcca 120  
gaagagtgtc tcggccagcg gcgatacctt gggtgccgtc atcagcgacc tggaggccaa 180  
ctattcgggc atttccgagc gcctgatgga cccgtcttcc ccaggttaagt tgcaccgctt 240  
cgtgaacatc tacgtcaacg acgaggacgt gcggttctcc ggccgcttgg ccaccgcgat 300  
cgctgacggt gactcggtca ccattctccc cgccgtggcc ggtgggtgag cggagcacat 360  
gacacgatac gactcgctgt tgcaggcctt gggcaacacg ccgctgggttgc gcctgcagcg 420  
attgtcgcca cgctggatg acgggcgaga 450

<210> 141

<211> 93

<212> PRT

<213> Mycobacterium tuberculosis

<400> 141

Met Asn Val Thr Val Ser Ile Pro Thr Ile Leu Arg Pro His Thr Gly

1

5

10

15

Gly Gln Lys Ser Val Ser Ala Ser Gly Asp Thr Leu Gly Ala Val Ile

20

25

30

Ser Asp Leu Glu Ala Asn Tyr Ser Gly Ile Ser Glu Arg Leu Met Asp

35

40

45

Pro Ser Ser Pro Gly Lys Leu His Arg Phe Val Asn Ile Tyr Val Asn  
50 55 60

Asp Glu Asp Val Arg Phe Ser Gly Gly Leu Ala Thr Ala Ile Ala Asp  
65 70 75 80

Gly Asp Ser Val Thr Ile Leu Pro Ala Val Ala Gly Gly  
85 90

<210> 142  
<211> 480  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 142  
ggtgttcccg cggccggcta tgacaacagt caatgtgcattacaaggttac aggtattagg 60  
tccaggttca acaaggagac aggcaacatg gcaacacgtt ttatgacgga tccgcacgcg 120  
atgcgggaca tggcgggccg ttttgaggtg cacccccaga cggtggagga cgaggctcgc 180  
cgatgtggg cgtccgcgca aaacatctcg ggccgggct ggagtggcat ggccgaggcg 240  
acctcgctag acaccatggc ccagatgaat caggcgtttc gcaacatcgt gaacatgctg 300  
cacgggtgc gtgacgggct ggtcgcgac gccaacaact acgagcagca agagcaggcc 360  
tcccagcaga tcctcagcag ctaacgtcag ccgctgcagc acaatactt tacaagcgaa 420  
ggagaacagg ttcatgacc atcaactatc agttcggtga tgtcgacgct catggcgcca 480

<210> 143  
<211> 98  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 143  
Met Ala Thr Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala  
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg  
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met  
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Ala Gln Met Asn Gln Ala Phe  
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg  
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu

85

90

95

Ser Ser

<210> 144

<211> 940

<212> DNA

<213> Mycobacterium tuberculosis

<400> 144

gccccagtc tcgatcgct catgccttc accggccgcc agccgaccgc aggccacgtg 60  
tccgccacct aacgaaagga tcatcgatgcc caagagaagc gaatacaggc aaggcacgcc 120  
gaactgggtc gacccatcaga ccaccgatca gtccggccgc aaaaagtctt acacatcggt 180  
gttcggctgg gtttacgacg acaaccggc ccccgagggc ggtgggtctt attccatggc 240  
cacgctgaac ggcgaagccg tggccgcatt cgccaccatg ccccccgggtg cacccggagg 300  
gatgccgcgc atcttgcaca ccttatatcgc ggtggacgc gtcgatgcgg tggtggacaa 360  
ggtgtgtccc gggggcgggc aggtgatgat gccggccttc gacatcgccg atgcccggccg 420  
gatgtcgatc atcaccgcgc cgaccggcgc tgccgtggc ctatggcagg ccaatcgcc 480  
catcgagcg acgttggtca acgagacggg cacgctcatc tggaacgaac tgctcacgg 540  
caagccggat ttggcgctag cggttctacga ggctgtggtt ggcctcaccc actcgagcat 600  
ggagatagct gcgggcccaga actatcggt gctcaaggcc ggcgacgcgg aagtcggcgg 660  
ctgtatggaa ccgcgcgtgc ccggcgtgcc gaatcattgg cacgtctact ttgcgggtgga 720  
tgacgcgcac gccacggcgg ccaaagccgc cgccagggc ggccaggtca ttgcggaaacc 780  
ggctgacatt ccgtcggtgg gccgggtcgc cgtgttgc gatccgcagg gcgcgatctt 840  
cagtgtgttg aagccgcac cgccagcaata gggagcatcc cggcaggcgcg cgcggccgg 900  
cagattcgga gaatgctaga agctggccgc ggcggccgcg 940

<210> 145

<211> 261

<212> PRT

<213> Mycobacterium tuberculosis

<400> 145

Met Pro Lys Arg Ser Glu Tyr Arg Gln Gly Thr Pro Asn Trp Val Asp

1

5

10

15

Leu Gln Thr Thr Asp Gln Ser Ala Ala Lys Lys Phe Tyr Thr Ser Leu

20

25

30

Phe Gly Trp Gly Tyr Asp Asp Asn Pro Val Pro Gly Gly Gly Val

35

40

45

Tyr Ser Met Ala Thr Leu Asn Gly Glu Ala Val Ala Ala Ile Ala Pro

50

55

60

Met Pro Pro Gly Ala Pro Glu Gly Met Pro Pro Ile Trp Asn Thr Tyr

65	70	75	80
Ile Ala Val Asp Asp Val Asp Ala Val Val Asp Lys Val Val Pro Gly			
85	90	95	
Gly Gly Gln Val Met Met Pro Ala Phe Asp Ile Gly Asp Ala Gly Arg			
100	105	110	
Met Ser Phe Ile Thr Asp Pro Thr Gly Ala Ala Val Gly Leu Trp Gln			
115	120	125	
Ala Asn Arg His Ile Gly Ala Thr Leu Val Asn Glu Thr Gly Thr Leu			
130	135	140	
Ile Trp Asn Glu Leu Leu Thr Asp Lys Pro Asp Leu Ala Leu Ala Phe			
145	150	155	160
Tyr Glu Ala Val Val Gly Leu Thr His Ser Ser Met Glu Ile Ala Ala			
165	170	175	
Gly Gln Asn Tyr Arg Val Leu Lys Ala Gly Asp Ala Glu Val Gly Gly			
180	185	190	
Cys Met Glu Pro Pro Met Pro Gly Val Pro Asn His Trp His Val Tyr			
195	200	205	
Phe Ala Val Asp Asp Ala Asp Ala Thr Ala Ala Lys Ala Ala Ala Ala			
210	215	220	
Gly Gly Gln Val Ile Ala Glu Pro Ala Asp Ile Pro Ser Val Gly Arg			
225	230	235	240
Phe Ala Val Leu Ser Asp Pro Gln Gly Ala Ile Phe Ser Val Leu Lys			
245	250	255	
Pro Ala Pro Gln Gln			
260			

<210> 146  
 <211> 280  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 146  
 ccgaaaggcg gtgcacgc cccagaagaa aaggaaagat cgagaaatgc cacagggAAC 60  
 tgtgaagtgg ttcaacgcgg agaagggtt cggctttatc gcccccaag acggttccgc 120  
 ggatgtattt gtccactaca cggagatcca gggAACGGGC ttccgcaccc ttgaagaaaa 180

ccagaaggc gagttcgaga tcggccacag ccctaagggc ccccaggcca ccggagtccg 240  
ctcgctctga gttacccccc cgagcagacg caaaaagccc 280

<210> 147

<211> 67

<212> PRT

<213> Mycobacterium tuberculosis

<400> 147

Met Pro Gln Gly Thr Val Lys Trp Phe Asn Ala Glu Lys Gly Phe Gly  
1 5 10 15

Phe Ile Ala Pro Glu Asp Gly Ser Ala Asp Val Phe Val His Tyr Thr  
20 25 30

Glu Ile Gln Gly Thr Gly Phe Arg Thr Leu Glu Glu Asn Gln Lys Val  
35 40 45

Glu Phe Glu Ile Gly His Ser Pro Lys Gly Pro Gln Ala Thr Gly Val  
50 55 60

Arg Ser Leu

65

<210> 148

<211> 540

<212> DNA

<213> Mycobacterium tuberculosis

<400> 148

atcggtcgat atcgagaacc ccggcccgta tcagaacqcg ccagagcgca aaccttata 60  
acttcgtgtc ccaaattgtga cgaccatggc ccaagggttc tgagatgaac ctacggcgcc 120  
atcagaccct gacgctgcga ctgctggcg catccgcggg cattctcagc gccgcggct 180  
tcgccccggcc agcacaggca aaccccgctg acgacgcgtt catcgccgcg ctgaacaatg 240  
ccggcgtaa ctacggcgat ccggcgacg ccaaagcgct gggtcagtcc gtctgcccga 300  
tcctggccga gcccggcgaa tcgtttaaca cccgcgttagc cagcgttgtg gcgcgcgccc 360  
aaggcatgtc ccaggacatg ggcacaaacct tcaccagtat cgcgatttcg atgtactgcc 420  
cctcggtgat ggcacacgtc gccagcggca acctgcggc cctgccagac atgccggggc 480  
tgcccggtc ctaggcgtgc gcggctcta gcggctccct aacggatcga tcgtggatgc 540

<210> 149

<211> 129

<212> PRT

<213> Mycobacterium tuberculosis

<400> 149

Met Asn Leu Arg Arg His Gln Thr Leu Thr Leu Arg Leu Leu Ala Ala

1 5 10 15  
Ser Ala Gly Ile Leu Ser Ala Ala Ala Phe Ala Ala Pro Ala Gln Ala  
20 25 30  
Asn Pro Val Asp Asp Ala Phe Ile Ala Ala Leu Asn Asn Ala Gly Val  
35 40 45  
Asn Tyr Gly Asp Pro Val Asp Ala Lys Ala Leu Gly Gln Ser Val Cys  
50 55 60  
Pro Ile Leu Ala Glu Pro Gly Gly Ser Phe Asn Thr Ala Val Ala Ser  
65 70 75 80  
Val Val Ala Arg Ala Gln Gly Met Ser Gln Asp Met Ala Gln Thr Phe  
85 90 95  
Thr Ser Ile Ala Ile Ser Met Tyr Cys Pro Ser Val Met Ala Asp Val  
100 105 110  
Ala Ser Gly Asn Leu Pro Ala Leu Pro Asp Met Pro Gly Leu Pro Gly  
115 120 125

Ser

<210> 150  
<211> 400  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 150  
atagtttggg gaagggtgtcc ataaatgagg ctgtcggtga ccgcatttag cgccgggtgtta 60  
ggcgccgtgg caatgtcggt gaccgtcggtt gcccgggtcg cctccgcaga tcccggtggac 120  
gcgggtcatta acaccacactg caattacggg caggttagtag ctgcgcgtcaaa cgcgacggat 180  
ccggggggctg ccgcacagtt caacgcctca ccgggtggcgcc agtcctatattt ggcgaatttc 240  
ctcgccgcac cgccacactca ggcgcgtgcc atggccgcgc aattgcaagc tgtgcccgggg 300  
gcggcacagt acatggcct tgtcgagtcg gttgcccggct cctgcaacaa ctattaagcc 360  
catgcgggccc ccatccccgcg acccggcatc gtcgcgggggg 400

<210> 151  
<211> 110  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 151  
Met Arg Leu Ser Leu Thr Ala Leu Ser Ala Gly Val Gly Ala Val Ala

1

5

10

15

Met Ser Leu Thr Val Gly Ala Gly Val Ala Ser Ala Asp Pro Val Asp  
20 25 30

Ala Val Ile Asn Thr Thr Cys Asn Tyr Gly Gln Val Val Ala Ala Leu  
35 40 45

Asn Ala Thr Asp Pro Gly Ala Ala Ala Gln Phe Asn Ala Ser Pro Val  
50 55 60

Ala Gln Ser Tyr Leu Arg Asn Phe Leu Ala Ala Pro Pro Pro Gln Arg  
65 70 75 80

Ala Ala Met Ala Ala Gln Leu Gln Ala Val Pro Gly Ala Ala Gln Tyr  
85 90 95

Ile Gly Leu Val Glu Ser Val Ala Gly Ser Cys Asn Asn Tyr  
100 105 110

<210> 152

<211> 990

<212> DNA

<213> Mycobacterium tuberculosis

<400> 152

aatagtaata tcgctgtgcg gttcaaaac gtgtgaccga ggttccgcag tcgagcgctg 60  
cggggccgcct tcgaggagga cgaaccacag tcatgacgaa catcggtgtc ctgatcaagc 120  
aggcccaga tacctggtcg gagcgcaagc tgaccgacgg cgatttcacg ctggaccgcg 180  
aggccgcccga cgcgtgtctg gacgagatca acgagcgccg cgtggaggaa gcgcctacaga 240  
ttcgggagaa agaggccgccc gacggcatcg aagggtcggt aaccgtgtc acggcgggcc 300  
ccgagcgccg caccgaggcg atccgcaagg cgctgtcgat gggtgccgac aaggccgtcc 360  
acctaagga cgacggcatg cacggctcgg acgtcatcca aaccgggtgg gctttggcgc 420  
gcgcgttggg caccatcgag ggcaccgagc tggtgatcgc aggcaaccaa tcgaccgacg 480  
gggtggccgg tgcgggtgcgc gccatcatcg ccgagttaccc gggcctgcgc cagctcaccc 540  
acctgcgcaca agtgtcgatc gagggcggca agatcaccgg cgagcgtgag accgatgagg 600  
gcgtattcac cctcgaggcc acgctgccc cggtgatcgc cgtgaacgag aagatcaacg 660  
agccgcgcctt cccgtccttc aaaggcatca tggccgc当地 gaagaaggaa gttaccgtgc 720  
tgaccctggc cgagatcggt gtcgagagcg acgagggtgg gctggccaaac gcccggatcca 780  
ccgtgctggc gtcgacgccc aaaccggccaa agactgcccgg ggagaaggtc accgacgagg 840  
gtgaaggccgg caaccagatc gtgcagtacc tggttgccc当地 gaaaatcatc taagacatac 900  
gcacctccca aagacgagag cgatataacc catggctgaa gtactggtgc tcggttagca 960  
cgctgaaggc gcgttaaaga aggtcagcgc 990

<210> 153

<211> 266

<212> PRT

<213> *Mycobacterium tuberculosis*

<400> 153

Met Thr Asn Ile Val Val Leu Ile Lys Gln Val Pro Asp Thr Trp Ser  
1 5 10 15

Glu Arg Lys Leu Thr Asp Gly Asp Phe Thr Leu Asp Arg Glu Ala Ala  
20 25 30

Asp Ala Val Leu Asp Glu Ile Asn Glu Arg Ala Val Glu Glu Ala Leu  
35 40 45

Gln Ile Arg Glu Lys Glu Ala Ala Asp Gly Ile Glu Gly Ser Val Thr  
50 55 60

Val Leu Thr Ala Gly Pro Glu Arg Ala Thr Glu Ala Ile Arg Lys Ala  
65 70 75 80

Leu Ser Met Gly Ala Asp Lys Ala Val His Leu Lys Asp Asp Gly Met  
85 90 95

His Gly Ser Asp Val Ile Gln Thr Gly Trp Ala Leu Ala Arg Ala Leu  
100 105 110

Gly Thr Ile Glu Gly Thr Glu Leu Val Ile Ala Gly Asn Glu Ser Thr  
115 120 125

Asp Gly Val Gly Gly Ala Val Pro Ala Ile Ile Ala Glu Tyr Leu Gly  
130 135 140

Leu Pro Gln Leu Thr His Leu Arg Lys Val Ser Ile Glu Gly Gly Lys  
145 150 155 160

Ile Thr Gly Glu Arg Glu Thr Asp Glu Gly Val Phe Thr Leu Glu Ala  
165 170 175

Thr Leu Pro Ala Val Ile Ser Val Asn Glu Lys Ile Asn Glu Pro Arg  
180 185 190

Phe Pro Ser Phe Lys Gly Ile Met Ala Ala Lys Lys Lys Glu Val Thr  
195 200 205

Val Leu Thr Leu Ala Glu Ile Gly Val Glu Ser Asp Glu Val Gly Leu  
210 215 220

Ala Asn Ala Gly Ser Thr Val Leu Ala Ser Thr Pro Lys Pro Ala Lys  
225 230 235 240

Thr Ala Gly Glu Lys Val Thr Asp Glu Gly Glu Gly Asn Gln Ile  
245 250 255

Val Gln Tyr Leu Val Ala Gln Lys Ile Ile  
260 265

<210> 154  
<211> 25  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 154  
ctgagatcta tgaacctacg gcgcc 25

<210> 155  
<211> 35  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 155  
ctccccatggc accctaggac ccgggcagcc ccggc 35

<210> 156  
<211> 29  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 156  
ctgagatcta tgaggctgtc gttgaccgc 29

<210> 157  
<211> 30  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 157  
ctccccgggc ttaatagttg ttgcaggagc 30

<210> 158  
<211> 33  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 158  
gcttagatct atgattttct gggcaaccag gta 33

<210> 159

<211> 30  
<212> DNA  
<213> *Mycobacterium tuberculosis*

<400> 159  
gcttccatgg gcgaggcaca ggcgtggaa 30

<210> 160  
<211> 30  
<212> DNA  
<213> *Mycobacterium tuberculosis*

<400> 160  
ctgagatcta gaatgccaca ggaaactgtg 30

<210> 161  
<211> 30  
<212> DNA  
<213> *Mycobacterium tuberculosis*

<400> 161  
tctcccgaaa gtaactcaga gcgagcggac 30

<210> 162  
<211> 27  
<212> DNA  
<213> *Mycobacterium tuberculosis*

<400> 162  
ctgagatcta tgaacgtcac cgtatcc 27

<210> 163  
<211> 27  
<212> DNA  
<213> *Mycobacterium tuberculosis*

<400> 163  
tctcccgaaa ctcacccacc ggccacg 27

<210> 164  
<211> 30  
<212> DNA  
<213> *Mycobacterium tuberculosis*

<400> 164  
ctgagatcta tggcaacacg ttttatgacg 30

<210> 165

<210> 170  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> VARIANT  
<222> (1)  
<223> Thr could also be Ala

<400> 170  
Thr Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala Gly  
1 5 10 15

<210> 171  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 171  
Pro Lys Arg Ser Glu Tyr Arg Gln Gly Thr Pro Asn Trp Val Asp  
1 5 10 15

<210> 172  
<211> 404  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 172  
Met Ala Thr Val Asn Arg Ser Arg His His His His His His His  
1 5 10 15

Ile Glu Gly Arg Ser Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu  
20 25 30

Gln Val Pro Ser Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln  
35 40 45

Ser Gly Gly Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp Gly Leu Arg  
50 55 60

Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro Ala Phe Glu  
65 70 75 80

Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly Gln  
85 90 95

Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala Gly  
100 105 110

Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu Pro Gln  
115 120 125

Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser Ala Ala Ile  
130 135 140

Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala Ala Tyr His  
145 150 155 160

Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu Leu Asp Pro  
165 170 175

Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met Gly Asp Ala  
180 185 190

Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser Asp Pro Ala  
195 200 205

Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu Val Ala Asn  
210 215 220

Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro Asn Glu Leu  
225 230 235 240

Gly Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe Val Arg Ser  
245 250 255

Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Ala Gly Gly His Asn  
260 265 270

Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp Glu Tyr Trp  
275 280 285

Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser Ser Leu Gly  
290 295 300

Ala Gly Lys Leu Ala Met Thr Glu Gln Gln Trp Asn Phe Ala Gly Ile  
305 310 315 320

Glu Ala Ala Ala Ser Ala Ile Gln Gly Asn Val Thr Ser Ile His Ser  
325 330 335

Leu Leu Asp Glu Gly Lys Gln Ser Leu Thr Lys Leu Ala Ala Ala Trp  
340 345 350

145	150	155	160
Arg Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro Ala Phe			
165	170	175	
Glu Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly			
180	185	190	
Gln Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala			
195	200	205	
Gly Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu Pro			
210	215	220	
Gln Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser Ala Ala			
225	230	235	240
Ile Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala Ala Tyr			
245	250	255	
His Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu Leu Asp			
260	265	270	
Pro Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met Gly Asp			
275	280	285	
Ala Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser Asp Pro			
290	295	300	
Ala Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu Val Ala			
305	310	315	320
Asn Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro Asn Glu			
325	330	335	
Leu Gly Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe Val Arg			
340	345	350	
Ser Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Ala Gly Gly His			
355	360	365	
Asn Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp Glu Tyr			
370	375	380	
Trp Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser Ser Leu			
385	390	395	400
Gly Ala Gly			

<210> 174  
 <211> 291  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 174  
 atgtcgacaa ttatgtacaa ctatccggcg atgatggctc atgccggga catggccggt 60  
 tatgcggca cgctgcagag cttgggggcc gatatcgcca gtgagcaggc cgtgtgtcc 120  
 agtgcttgcg agggtatac cgggatcacg tatcagggtct ggcagaccca gtgaaaccag 180  
 gcccctagagg atctgggtgcg ggcctatcatcg tcgatgtctg gcacccatga gtccaaacacc 240  
 atggcgatgt tggctcgaga tggggccgaa gccgccaagt ggggcggcta g 291

<210> 175  
 <211> 96  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 175  
 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Met Ala His Ala Gly  
 1 5 10 15

Asp	Met	Ala	Gly	Tyr	Ala	Gly	Thr	Leu	Gln	Ser	Leu	Gly	Ala	Asp	Ile
	20				25					30					

Ala	Ser	Glu	Gln	Ala	Val	Leu	Ser	Ser	Ala	Trp	Gln	Gly	Asp	Thr	Gly
	35				40				45						

Ile	Thr	Tyr	Gln	Gly	Trp	Gln	Thr	Trp	Asn	Gln	Ala	Leu	Glu	Asp	
	50				55			60							

Leu	Val	Arg	Ala	Tyr	Gln	Ser	Met	Ser	Gly	Thr	His	Glu	Ser	Asn	Thr
	65				70			75			80				

Met	Ala	Met	Leu	Ala	Arg	Asp	Gly	Ala	Glu	Ala	Lys	Trp	Gly	Gly	
	85				90			95							

<210> 176  
 <211> 363  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 176

gtgtcgacaga gtatgtacag ctaccggcg atgacggcca atgtcgaga catggccgt 60  
tatacggcca cgacgcagag cttgggggcc gatatcgcca gtgagcgcac cgccgcgtcg 120  
cgtgcttgc aaggatgtct cggatgagt catcaggact ggcaggccca gtggaatcag 180  
gccatggagg ctctcgccg ggcctaccgt cggtgccggc gagcactacg ccagatcg 240  
gtgctggaaa ggccggtagg cgattcgta gactcgaa cgatttaggt ggggtcggtc 300  
cggggtcggt ggctggaccc ggcgcattgcg ggtccagcca cggccgcga cgccggagac 360  
taa 363

<210> 177

<211> 120

<212> PRT

<213> Mycobacterium tuberculosis

<400> 177

Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly

1 5 10 15

Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln Ser Leu Gly Ala Asp Ile

20 25 30

Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp Leu Gly

35 40 45

Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala

50 55 60

Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly

65 70 75 80

Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg

85 90 95

Val Gly Ser Phe Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro

100 105 110

Ala Thr Ala Ala Asp Ala Gly Asp

115 120

<210> 178

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 178

atggcctcgc gtttatgac ggatccgcac gcgatgcggg acatggcggg ccgttttag 60  
gtgcacgccc agacggtgaa ggacgaggct cgccggatgt gggcgccgc gcaaaacatc 120

tcgggcgcgg gctggagtgg catggccgag gcgacctcg tagacaccat gacccagatg 180  
aatcaggcgt ttcgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240  
gacgccaaca actacgaaca gcaagagcag gcctcccagc agatcctcag cagctga 297

<210> 179

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 179

Met Ala Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala  
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg  
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met  
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe  
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg  
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu  
85 90 95

Ser Ser

<210> 180

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 180

atggcctcac gtttatgac ggatccgcac gcgatgcggg acatggcgaa ccgttttag 60  
gtgcacgccc agacggtgaa ggacgaggct cgccggatgt gggcgtccgc gcaaaacatt 120  
tccggcgcgg gctggagtgg catggccgag gcgacactcg tagacaccat ggcccgatg 180  
aatcaggcgt ttcgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240  
gacgccaaca actacgagca gcaagagcag gcctcccagc agatcctcag cagctaa 297

<210> 181

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 181

Met Ala Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala  
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg  
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met  
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Ala Gln Met Asn Gln Ala Phe  
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg  
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu  
85 90 95

Ser Ser

<210> 182

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 182

atggcctcac gtttatgac ggatccgcat gcgatgcggg acatggcgaa ccgttttag 60  
gtgcacgccc agacggtgga ggacgaggct cgccggatgt gggcgtcgc gcaaaaacatt 120  
tccgggtgcgg gctggagtgg catggccag ggcacccgc tagacaccat gacctagatg 180  
aatcaggcgt ttcgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240  
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<210> 183

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<212> PRT

<213> Mycobacterium tuberculosis

<400> 183

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1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg  
20 25 30

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35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe  
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg  
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu  
85 90 95

Ser Ser

<210> 184

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 184

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tccggcgccgg gctggagtgg catggccag gcgacctcgc tagacaccat gaccagatg 180  
aatcaggcgat ttcgcaacat cgtgaacatg ctgcacgggg tgctgtgacgg gctggttcgc 240  
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<210> 185

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 185

Met Thr Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala  
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg  
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met  
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe  
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg  
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu  
85 90 95

Ser Ser

<210> 186

<211> 20

<212> DNA

<213> Mycobacterium tuberculosis

<400> 186

ggaataaaaa ggggtttgtg

20

<210> 187

<211> 20

<212> DNA

<213> Mycobacterium tuberculosis

<400> 187

gaccacgccc gcgcgtgtg

20

<210> 188

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 188

gcaacaccccg ggatgtcgca gattatg

27

<210> 189

<211> 30

<212> DNA

<213> Mycobacterium tuberculosis

<400> 189

ctaagcttgg atccctagcc gccccacttg

30

<210> 190

<211> 22

<212> DNA

<213> Mycobacterium tuberculosis

<400> 190

aatatttga aaggattcg tg

22

<210> 191  
<211> 30  
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<213> *Mycobacterium tuberculosis*

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ctactaagct tggatcctta gtctccggcg

30

<210> 192  
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<213> *Mycobacterium tuberculosis*

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27

<210> 193  
<211> 30  
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<213> *Mycobacterium tuberculosis*

<400> 193  
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30

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1 5  
  
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Pro Ala Met Leu Gly His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr  
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Leu Gln Ser Leu Gly Ala Glu Ile Ala Val Glu Gln Ala Ala Leu Gln  
25 30 35 40  
  
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45 45 50 55  
  
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Gln Trp Asn Gln Ala Met Glu Asp Leu Val Arg Ala Tyr His Ala Met  
60 65 70  
  
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Ser Ser Thr His Glu Ala Asn Thr Met Ala Met Met Ala Arg Asp Thr  
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2 84

<213> Mycobacterium

tuberculosis

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Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp Thr Gly  
35 40 45  
10 Ile Thr Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp  
50 55 60  
Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His Glu Ala Asn Thr  
65 70 75 80  
Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly  
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<211> 363

<212> DNA

20 <213> Mycobacterium tuberculosis

<220>

<221> CDS

<222> (1)...(360)

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30 gac atg gcc ggt tat acg ggc acg acg cag agc ttg ggg gcc gat atc 96  
Asp Met Ala Gly Tyr Thr Gly Thr Gln Ser Leu Gly Ala Asp Ile  
20 25 30  
35 gcc agt gag cgc acc gcg ccg tcg cgt gct tgc caa ggt gat ctc ggg 144  
Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp Leu Gly  
35 40 45  
40 atg agt cat cag gac tgg cag gcc cag tgg aat cag gcc atg gag gct 192  
Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala  
50 55 60  
45 ctc gcg cgg gcc tac cgt cgg tgc cgg cga gca cta cgc cag atc ggg 240  
Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly  
65 70 75 80  
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Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg  
85 90 95  
55 gtg ggg tcg ttc cgg ggt cgg tgg ctg gac ccg cgc cat gcg ggt cca 336  
Val Gly Ser Phe Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro  
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305

115

120

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35 40 45  
Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala  
50 55 60  
Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly  
65 70 75 80  
20 Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg  
85 90 95  
Val Gly Ser Phe Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro  
100 105 110  
Ala Thr Ala Ala Asp Ala Gly Asp  
25 115 120

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<212> DNA  
<213> Mycobacterium tuberculosis

35 <220>  
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1 5 10 15

45 gac atg gcc ggt tat gcg ggc acg ctg cag agc ttg ggg gcc gat atc 96  
Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile  
20 25 30

50 gcc agt gag cag gcc gtg ctg tcc agt gct tgg cag ggt gat acc ggg 144  
Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp Thr Gly  
35 40 45

55 atc acg tat cag ggc tgg cag acc cag tgg aac cag gcc cta gag gat 192  
Ile Thr Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp  
50 55 60

55 ctg gtg cgg gcc tat cag tcg atg tct ggc acc cat gag tcc aac acc 240  
Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His Glu Ser Asn Thr  
65 70 75 80

486

atg gcg atg ttg gct cga gat ggg gcc      gaa gcc gcc aag tgg ggc ggc      288  
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5 tag 291

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<211> 96

<212> PRT

10 <213> *Mycobacterium tuberculosis*

<400> 199

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15 Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile  
20 25 30

Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp Thr Gly  
35 40 45

20 Ile Thr Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp  
50 55 60

Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His Glu Ser Asn Thr  
 65                   70                   75                   80  
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Met Ala Met Leu Ala Arg Asp Glu Ala Glu Ala Ala Lys Trp Gly Gly  
85 90 95

-121.95 -30.0

25

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30 <213> *Mycobacterium tuberculosis*

<220>

221 CDS

<222> (1)

**<400> 200**

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40      1                5                10                15

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Asp Met Ala Gly

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Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Met Ala His Ala Gly

Asp Met Ala Gly

55 20

287

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15 agc ttg ggg gcc 60  
Ser Leu Gly Ala  
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1 5 10 15

45 gcc gtg ctg tcc 60  
Ala Val Leu Ser  
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50 <210> 205  
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<212> PRT  
<213> Mycobacterium tuberculosis

55 <400> 205  
Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Gln

16 88

1	5	10	15	
Ala Val Leu Ser				
20				
5	<210> 206			
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	<213> Mycobacterium tuberculosis			
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	Asp Ile Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp			
	1 5 10 15			
20	acc ggg atc acg			60
	Thr Gly Ile Thr			
	20			
25	<210> 207			
	<211> 20			
	<212> PRT			
	<213> Mycobacterium tuberculosis			
	<400> 207			
30	Asp Ile Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp			
	1 5 10 15			
	Thr Gly Ile Thr			
	20			
35	<210> 208			
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	<212> DNA			
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	Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Gly Trp Gln Thr			
	1 5 10 15			
50	cag tgg aac cag			60
	Gln Trp Asn Gln			
	20			
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X89

<213> Mycobacterium

tuberculosis

<400> 209

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Gln Trp Asn Gln  
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1 5 10 15

48

cgg gcc tat cag  
Arg Ala Tyr Gln  
25 20

60

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<400> 211

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Arg Ala Tyr Gln  
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48

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<222> (1)...(60)

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1 5 10 15

48

gag tcc aac acc  
Glu Ser Asn Thr  
55 20

60

890

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<212> PRT  
5 <213> Mycobacterium tuberculosis

<400> 213  
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10 Glu Ser Asn Thr  
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25 1 5 10 15

gat ggg gcc gaa 60  
Asp Gly Ala Glu  
20

30

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Ser Met Ser Gly Thr His Glu Ser Asn Thr Met Ala Met Leu Ala Arg  
1 5 10 15

40 Asp Gly Ala Glu  
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45 <212> DNA  
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55 1 5 10 15

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 Met Ala Met Leu Ala Arg Asp Gly Ala Glu Ala Ala Lys Trp Gly Gly  
 1 5 10 15  
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 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly  
 1 5 10 15  
 25 gat atg 48  
 Asp Met 54  
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 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly  
 1 5 10 15  
 Asp Met  
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 <213> Mycobacterium tuberculosis  
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 1 5 10 15  
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 Ser Leu 54

1092

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10 Met Leu Gly His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln  
 1 5 10 15  
 Ser Leu

15 <210> 222  
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20 <220>  
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35 <210> 223  
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*793*

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5

10

15

54

acc ggg  
Thr Gly

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Thr Gly

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<211> 54

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48

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54

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1294

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<212> PRT  
<213> *Mycobacterium tuberculosis*

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 Arg

35            <210> 230  
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              <213> *Mycobacterium tuberculosis*

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      <222> (1) ... (54)

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1895

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gac acg 54  
Asp Thr

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1496

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<211> 60  
<212> DNA  
<213> Mycobacterium tuberculosis

10 <220>  
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Asp Met Ala Gly  
20

25 <210> 237  
<211> 20  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 237  
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1 5 10 15  
Asp Met Ala Gly  
20

35 <210> 238  
<211> 60  
<212> DNA  
<213> Mycobacterium tuberculosis

40 <220>  
<221> CDS  
<222> (1)...(60)

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1 5 10 15

50 agc ttg ggg gcc 60  
Ser Leu Gly Ala  
20

55 <210> 239  
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<212> PRT

1597

<213> Mycobacterium

tuberculosis

<400> 239

Met Thr Ala Asn Val Gly Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln  
5 1 5 10 15  
Ser Leu Gly Ala  
20

<210> 240

10 <211> 60  
<212> DNA  
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<220>

15 <221> CDS  
<222> (1)...(60)

<400> 240

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acc gcg ccg tcg  
Thr Ala Pro Ser  
25 20

48

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<210> 241

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<400> 241

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Thr Ala Pro Ser  
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45 <220>  
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1 5 10 15

48

55 ctc ggg atg agt  
Leu Gly Met Ser  
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60

16.99

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25 1 5 10 15

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<400> 245  
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1 5 10 15

40 Gln Trp Asn Gln  
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His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala Leu Ala  
55 1 5 10 15

1799

cgg gcc tac cgt  
Arg Ala Tyr Arg  
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1 5 10 15  
Arg Ala Tyr Arg  
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Ala Met Glu Ala Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu  
1 5 10 15  
  
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cgc cag atc ggg  
Arg Gln Ile Gly  
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<210> 249  
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45  
<400> 249  
Ala Met Glu Ala Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu  
1 5 10 15  
Arg Gln Ile Gly  
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Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly Val Leu Glu Arg Pro Val  
1                5                10                15

5    ggc gat tcg tca      60  
Gly Asp Ser Ser  
20

10      <210> 251  
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15      <400> 251  
Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly Val Leu Glu Arg Pro Val  
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Gly Asp Ser Ser  
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20      <210> 252  
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25      <220>  
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30      <400> 252      48  
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35    gtg ggg tcg ttc      60  
Val Gly Ser Phe  
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40      <210> 253  
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Val Gly Ser Phe  
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48

ccg cgc cat gcg

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10 Pro Arg His Ala  
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<213> Mycobacterium tuberculosis

<400> 255

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Pro Arg His Ala  
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<210> 256

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<212> DNA

<213> Mycobacterium tuberculosis

30 <220>

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<400> 256

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1 5 10 15

48

gac gcc gga gac

60

40 Asp Ala Gly Asp  
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<210> 257

<211> 20

<212> PRT

<213> Mycobacterium tuberculosis

<400> 257

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1 5 10 15

Asp Ala Gly Asp  
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